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ABSTRACT

A concept-based introduction to rural public transportation is provided in this instructional module for undergraduate and graduate transportation-related courses for disciplines such as engineering, business, sociology, and technology. Rural public transportation involves systems in rural and small urban areas with populations under 50,000 people. The unique transportation needs of rural areas and problems in designing such a system are considered. Attention is also directed to: the variety of service providers and operators in rural transportation and examples of various provider and operator modal options; organizational structures to meet transportation needs in rural areas; the need-based approach to planning; the process of market segmentation; factors to be considered in the design and implementation of rural public transportation; illustrations of how selected operations have achieved varying degrees of success; and directions for rural public transportation in the future. Appended are a glossary; the names, addresses, and phone numbers of individuals and groups that are part of a rural transit network; and a five-page reference list. (SW)

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RURAL PUBLIC TRANSPORTATION

INSTRUCTIONAL MODULE

HE020 143

US Department of Transportation
Urban Mass Transportation Administration

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16. Abstract

This module provides a broad concept-based introduction to the topic of rural public transportation for use in both undergraduate and graduate transportation-related courses. The material is designed to be useful in many disciplines including engineering, business, sociology, and technology.

Rural public transportation involves systems in rural and small urban areas with populations under 50,000 people. Public transportation services in rural areas have often been provided by social service agencies for their clients. New federal programs have facilitated the development of rural systems open to the public but strong local involvement and support are necessary to create and support such services in low-density, rough terrain areas.

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RURAL PUBLIC TRANSPORTATION:

AN INSTRUCTIONAL MODULE

Prepared by
The Transportation Education Project
Technology Education Program
West Virginia University

For
The Office of Service and
Management Demonstrations

Urban Mass Transportation
Administration

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Rural Public Transportation

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PROFESSOR'S INTRODUCTION

Project Purpose

Since the founding of the Service and Methods Demonstration Program (SMD) in 1974, the Urban Mass Transportation Administration (UMTA) has been intimately involved in the development and diffusion of innovations related to mass transportation. After a decade of experiments and demonstrations, valuable insights and techniques have emerged.

However, students graduating with transportation degrees are often unaware of much of the information which UMTA has developed. These modules were designed to introduce future transportation professionals and people with related interests to five areas where new ideas have proven important in the planning and management of public transportation systems. The topics are:

- Market Segmentation Planning;
- Paratransit;
- Transportation Brokerage;
- Rural Public Transportation; and
- Public Transportation Pricing.

The topics are defined at the end of this introduction and discussed in the General Introduction.

Description of the Modules

These modules are intended to provide a broad, concept-based introduction to each of the five topics for use in both undergraduate and graduate transportation-related courses. The material is designed to be useful in many disciplines, including engineering, business, planning, marketing, public administration, and technology.

One of the major findings of our phone interview in February 1983 was that professors want curriculum packages to be flexible. These modules were designed to be taught for one to three classroom hours. The module text may be used in a number of ways including uses as:

- Lecture notes;
- Student homework readings;
- Overhead transparencies from illustrations; and
- In-class reading and discussion.

All graphic materials labeled as illustrations are designed to be used as overhead projections while graphic materials labeled figures are designed for photocopying.

Professors should feel free to use these materials to supplement regular course design and materials in any way they wish. However, we have placed asterisks in the Table of Contents after sections which we suggest you concentrate on if you only have one hour to teach the module topic. At

the end of each of the three sections of the module, there are Student Review Questions based on the preceding material.

The topics of the five modules have a significant content overlap which is reflected in the module texts themselves. Therefore, some module sections are virtually repeated from one module to another. Professors utilizing more than one of the modules should make allowances for this in planning their presentations.

Persons wishing more detailed and in-depth information on particular topics should refer to the list of references at the end of each module. Sources published by UMTA may be located through the UMTRIS computer database on the DIALOG system or from the National Technical Information Service (NTIS). It may also be possible to obtain recent UMTA Technical Reports and a current bibliography from U.S. DOT/TSC, Service Assessment Division (DTS-64), Kendall Square, Cambridge, MA 02142.

Module Topic Definitions

Market Segmentation

Market Segmentation is a transportation planning approach which involves identifying groups in a market that are "homogeneous with respect to important criteria that influence their travel choices" (Nelson, TRR 823, p. 8).

This approach is associated with integrated mobility-based transportation planning and allows the consideration of a variety of solutions to individual travel needs and markets.

Paratransit

Paratransit refers to modes of passenger transportation which are on a continuum between the private automobile and conventional transit. They are usually available to the general public and able to operate over the street and highway system (Kirby, 1974, pp. 1, 9). Paratransit generally refers to modes such as dial-a-ride, shared-ride taxi, jitneys, vanpools, and so on.

Transportation Brokerage

The transportation broker identifies the transportation needs and demands of various market segments and then matches these needs with available transportation resources. The broker also may resolve barriers to innovative transportation arrangements and implement those arrangements through contracts with social service agencies, employers and private operators. Brokerage is a concept which highlights many of the roles a transportation manager can undertake to provide mobility comprehensively and cost-effectively.

Rural Public Transportation

Rural public transportation involves systems in rural and small urban areas with populations under 50,000 people. Public transportation services in rural areas have often been provided solely by social service agencies serving their clients. New federal programs have facilitated the development of rural systems open to the public but strong local involvement and creativity are needed to create and support such services.

Public Transportation Pricing

Public transportation pricing systems are composed of fare structures and fare collection mechanisms. They are based on consideration of the system users, politics, funding sources, system costs, and system service characteristics. Planning pricing systems involves the balancing of many complex demands. Higher fares often lead to increased revenue generation but they can decrease ridership thereby lowering the social benefits of transit service. Complicated fare systems can promote equity among riders but they can make fares difficult to collect efficiently.

GENERAL INTRODUCTION

Historically, mass transportation in the United States was almost always provided by private, profit-seeking enterprises. The public's interest was usually protected through regulation by a public utility commission. Such commissions controlled entry into the transit business, fares, and the types of service offered.

As the number of automobiles and the quality of roads increased, mass transit ridership suffered a major decline. At the end of World War II, 37% of commuters were riding to work on public transit. By 1979, this figure had fallen to 6%; and there was an automobile for every two Americans. An expanding economy permitted many urban residents to purchase cars and suburban houses.

Mass transportation did not adapt to these changes, and private enterprise gradually withdrew from providing such services. The federal government began to provide financial assistance for transit systems which permitted local governments to take control of them. In the 1960s, the federal government initiated operating subsidies to help curb deficits.

As federal assistance for transportation systems grew, it became evident that the government was spending

increasing sums of money to support transportation systems which were not adjusting to changing conditions. Research into alternative methods of providing public mobility was a necessity. In 1964 Congress created the Urban Mass Transportation Administration (UMTA) to "research, develop, and demonstrate projects in urban mass transportation."

In 1974 UMTA created the Service and Methods Demonstration (SMD) Program to promote the development and widespread adoption of innovative transit services and transportation management techniques. Some of the areas in which UMTA has facilitated major changes are bus and rail equipment design, automation, paratransit, brokerage, integrated planning, and other management innovations.

These modules were designed to introduce students of transportation to information on five topics: market segmentation planning, paratransit, transportation brokerage, rural public transportation, and public transportation pricing. The information in the modules is based on the results of numerous UMTA-funded demonstration and research projects related to these topics. The five topics are introduced on the following pages.

New Directions

Market Segmentation

Public transportation today involves a variety of transportation modes with varying costs and characteristics. A transportation planner must have new planning tools to cope with the complex array of possible systems.

Instead of focusing on transportation systems, the planner should begin by studying the actual mobility needs of the people to be served. Needs-based transportation planning is the only way to ensure services that are fully used and cost-effective. New or modified services which meet the needs of certain groups must then be marketed to inform people of the service's benefits for them.

There are four basic steps to the Market Segmentation planning approach:

1. Market Segmentation Analysis
2. Assessment of Existing Services
3. Analysis of Unmet Needs
4. Targeted Design

Paratransit

Paratransit refers to any public transportation mode which falls on the continuum between the large fixed-route systems (bus, train, etc.) and the private automobile. This includes demand-responsive modes such as Dial-A-Ride and ridesharing modes such as vanpools. Paratransit

systems are designed to be flexible, cost-effective,and targeted to specific needs, but they cannot move large numbers of people on a single route as cheaply as mass transit systems.

Paratransit is being used to serve commuters, the handicaped, the elderly, and others. It works well in low-density or special needs situations where conventional mass transit would be too expensive. Paratransit also can work well as a feeder service for a conventional system.

Brokerage

Suppose a city decides to provide its elderly with a partially subsidized door-to-door service. It would be very expensive to buy cars, maintain them, hire drivers, and so on. It is cheaper to contract with local taxi companies who already have facilities and a workforce. The taxi company provides the service, the elderly give the drivers tickets (provided by the broker) good for part of each fare, and the city buys the tickets back from the taxi company.

In such a case, the transportation planner acts as a broker who matches transportation needs with available services. Rather than operating as a carrier, the transportation broker is primarily concerned with increasing people's mobility with equitable and cost-effective services.

Brokerage is useful in many areas of transportation management, particularly in the provision of flexible, low-cost paratransit services. The concept of brokerage highlights the new types of roles transportation managers can undertake in today's complex operating environments.

Rural Public Transportation

Rural areas are characterized by sparse populations, often difficult road conditions, and limited resources, yet people in rural areas need mobility for access to jobs, shopping and health care. Most rural people either own autos or rely on informal networks based on them. Public transportation in rural areas has usually been provided solely by social service agencies serving their clients. Federal funding has facilitated the development of systems open to the public but strong local involvement and creativity are needed to create and support such services.

Rural systems have employed many innovations including all types of cooperative arrangements, extensive use of volunteers, and experiments with non-traditional vehicles such as school buses and postal vehicles. Rural public transportation fills pressing needs but due to the difficulties of arranging and financing it, strong local support and creativity are essential.

Public Transportation Pricing

Public transportation pricing systems are composed of fare structures and fare collection mechanisms. Fare structures deal with how much system riders pay to use the service while collection mechanisms range from simple cash fares to complex postpayment and user-subsidy ticket systems.

Planning the pricing of a public transportation service is an integral part of planning the overall transportation system. Fares and collection methods are based on factors such as who the system users are, political considerations, sources of funding, costs of the system, and system service characteristics. Planning pricing systems involves the balancing of many complex demands.

Higher fares often lead to increased revenue generation but they can decrease ridership thereby lowering the social benefits of transit service. Complicated fare systems can promote equity among riders by permitting, for example, discounts for the elderly. However, too many complications can make fares difficult for bus drivers to collect efficiently.

RPT: AN EMERGING CONCEPT

The purposes of this section are:

- To provide the reader with an overview of rural public transportation and its emergence as a public service.
- To familiarize the reader with the unique transportation needs of people in rural areas.
- To describe the problems inherent in designing rural public transportation systems.
- To introduce the reader to current efforts in meeting the transportation needs of people in rural areas.

Background Information

Historically rural public transportation systems have resulted as a by-product of social services programs. These programs, developed in the late sixties, were designed to help the physically and mentally disabled, the elderly, the poor, unemployed persons, minorities, and

other disadvantaged groups. Thus, rural transportation developed merely as a component which administrators recognized as essential to the implementation of their other programs.

The Issue of Mobility

Mobility in modern industrialized nations is a key factor in social and economic opportunity. For citizens in rural areas who do not own or cannot drive cars, mobility is provided by informal transportation networks and various forms of public transportation. If people in rural areas are to lead productive lives and have equal opportunities, some form of appropriate transportation must be available, public or private. In today's society holding a job, obtaining adequate health care, and participating in social and recreational programs depend on the availability of personal transportation. A common problem of people in rural areas is that many of the programs developed to help those in need are of little benefit if the people who need them most cannot travel to reach them.

In the U.S. the distribution of public transportation is not adequate to meet the needs of the people. This is particularly so for those living in rural areas with limited access to minimal service. (See Illustration 1.)

Illustration 1. Transportation Distribution Problem

Some of the conditions which contribute to the difficulty in meeting the transportation needs of people in rural areas and are typical of rural areas include:

- sparse populations;
- rough terrain; and
- limited and diminishing financial resources.

This instructional unit is designed to address the issues of rural public transportation based on information about programs currently in operation.

Characteristics of People in Rural Areas

The population, or market segments, in rural areas can be described as having three general characteristics:

1. high percentages of elderly;
2. large numbers of single female household heads; and
3. lower than average income levels.

These characteristics inhibit the ability of the many rural people to use the more conventional means of transportation, such as the private automobile, a means of transportation depended on by over 85% of the U.S working population in 1979 for commuting. (See Figure 1.)

Figure 1. Major Mode of Transportation to Work (1979).

MODE	UNITED STATES TOTAL	
	Number (000)	Percent
Total	54,104	100.0
Automobile or truck	46,368	85.7
Drive alone	37,129	68.6
Automobile	29,382	54.3
Truck	7,747	14.3
Carpool	9,240	17.1
Automobile	7,644	14.1
Truck	1,596	2.9
Public Transportation	3,219	5.9
Bus or street car	1,922	3.6
Subway or elevated	901	1.7
Railroad	323	0.6
Taxicab	73	0.1
Bicycle	309	0.6
Motorcycle	375	0.7
Walk only	2,117	3.9
Other means	256	0.5
Work at home	1.261	2.3
Not reported	200	0.4

SOURCE: U.S. Department of Commerce, Bureau of Census, Current Population Reports Special Studies Series P-23, No. 122. Journey to Work in U.S., 1979.

Elderly Persons and Persons with Disabilities

Elderly persons and persons with disabilities, regardless of where they live, are often restricted to using forms of transportation that have been designed to accommodate their special needs. However, specialized transportation, particularly in rural areas, can be very costly due to sparse population and lengthy trips--particularly to urban health centers, leisure activity centers, social services, or work. Nevertheless, the subsidization of transportation for elderly and disabled persons is considered by many to be an appropriate and cost-effective alternative to the institutionalization and relocation of these people. If an option exists, people with special needs often choose to live at home and travel to activity centers.

Female Household Heads

People in rural areas with low incomes often cannot afford to own and operate a car. This problem, common in rural areas, has been found to be most critical in the case of female household heads. Rural women frequently have no access to transportation. This lack of transportation eliminates their opportunity for employment outside of the home; a situation which can result in feelings of isolation and desperation.

Transportation Needs in Rural Areas

The number of towns with local public transportation has been declining. In the spring 1983 edition of the Rural Transportation Reporter, George Rucker of Rural America reported that in the early 1970s, only 400 (about 11 percent) of the more than 3,700 towns between 5,000 and 50,000 population could claim local public-transit systems. A decade later, the number of towns of this size had jumped to 4,600, but those with public transit had decreased -- to just 340, or 7 percent. According to Barbara Price, also of Rural America, by 1985 this number had increased to 1,000 rural public tranit programs currently funded by Section 18.

A 1982 survey by the American Association of State Highway and Transportation Officials (AASHTO) found that the specialized transportation providers (mostly human-service agencies) in non-urban areas operate more vehicles than do the public transit systems. Yet, even when those specialized providers are taken into account, urban areas have more than twice the per capita public transportation facilities of non-urban areas.

Informal Networks

Traditionally people in rural areas have formed informal networks to help meet their transportation

needs. Informal carpool arrangements to work, to shop, and to health and other human services are essential to many individuals and can be their only means of transportation. Although these arrangements may more-or-less meet the transportation needs of those who participate, it is often difficult to arrange informal networks in a way that ensures that the needs of all people in the area are being met. Many times those most in need are overlooked.

A study of four counties in rural West Virginia, conducted by West Virginia University in 1978 indicated that the older citizens in rural West Virginia rely on informal networks to provide all of their transportation. Single women in rural areas often have no other choice but to depend on the cooperation of a neighbor to transport them to and from town. Many individuals in rural areas, particularly young people, hitchhike or walk to town in order to work, shop or reach a social service.

Funding for Rural Public Transportation

Beginning with the Rural Poverty Program Transportation Projects in the late 1960's, interest in rural passenger transportation had developed by 1973 into the Section 147 Rural Highway Public Transportation Demonstration Program. As the first national program explicitly recognizing rural transportation needs, it was designed to test a variety of transportation methods to fit highly variable rural

transportation needs. By 1978, the Section 18 Program, the Formula Grant Program for areas other than urbanized, became the first full-scale federal program providing assistance for rural transportation in rural areas.

The goals of Section 18 are similar to Section 147. They include enhancing access in nonurbanized areas, assisting in the development of public systems, coordination of systems, and private sector involvement.

Section 18 provides funding through state governments. One-fifth of all organizations receiving Section 18 funds are private, non-profit organizations. Private systems are eligible if their specialized services are open to the general public. This federal program is administered by the Urban Mass Transportation Administration (UMTA) under the Department of Transportation.

These funds may be used for planning, capital, operating and administrative assistance by state agencies, local public bodies, non-profit organizations, Indian Tribes and groups, and operators of public transportation services. Federal funds will cover up to 50 percent of operating costs and up to 80 percent of non-operating costs.

While Section 18 provides operating and capital assistance for general public transportation in rural areas, Section 16(b)(2), also managed by UMTA, provides

capital assistance to private, non-profit organizations for services for the elderly and persons with disabilities who live in rural and urbanized areas. Section 16(b)(2) funds are made available to each state for a period of one year. They are administered by a designated agency, usually the same agency that administers the Section 18 program.

Section 8, the Planning and Technical Assistance Program provides for planning grants. Part of the 15 percent funds from the state's Section 18 grants may be allocated for planning in rural and small urban areas. The states also have the option of receiving Section 8 funds for urbanized areas of 50,000 to 200,000 population.

Under the new guidelines, states may now submit a program of transportation projects to UMTA for each fiscal year that includes Section 16(b)(2), Section 18 and Section 8 planning funds in a single grant application. For funding purposes, rural and small urban areas are classified as those having populations up to 50,000.

Two states that provide examples of how Section 8 funds, used in concert with Section 18, might benefit small and rural operators are Illinois and West Virginia. Illinois used federal assistance funds to conduct a study on improved specifications and procurement procedures for vehicles for elderly and disabled persons. West Virginia used its funds for a survey designed to help create a directory of all paratransit and taxi providers in the

state, a performance audit for small urban and rural transit systems, and a statewide self-help marketing program.

Local Match

Transit receives funding from all levels of government for highways and public transportation. The federal government provides both capital and operating subsidies. With the passage of the Surface Transportation Assistance Act of 1982, Congress authorized $17.7 billion over four years to support state and local transit programs. However, while these federal dollars seem large in amount, they are still inadequate to meet the increasing capital and operating demands of public transportation. State and local governments are being forced to seek new ways to increase their funding for public transportation.

The American Association of State Highway and Transportation Officials (AASHTO) reports that 35 states provide some sort of capital or operating assistance. (See Illustration 2, States Providing Capital or Operating Support to Transit.)

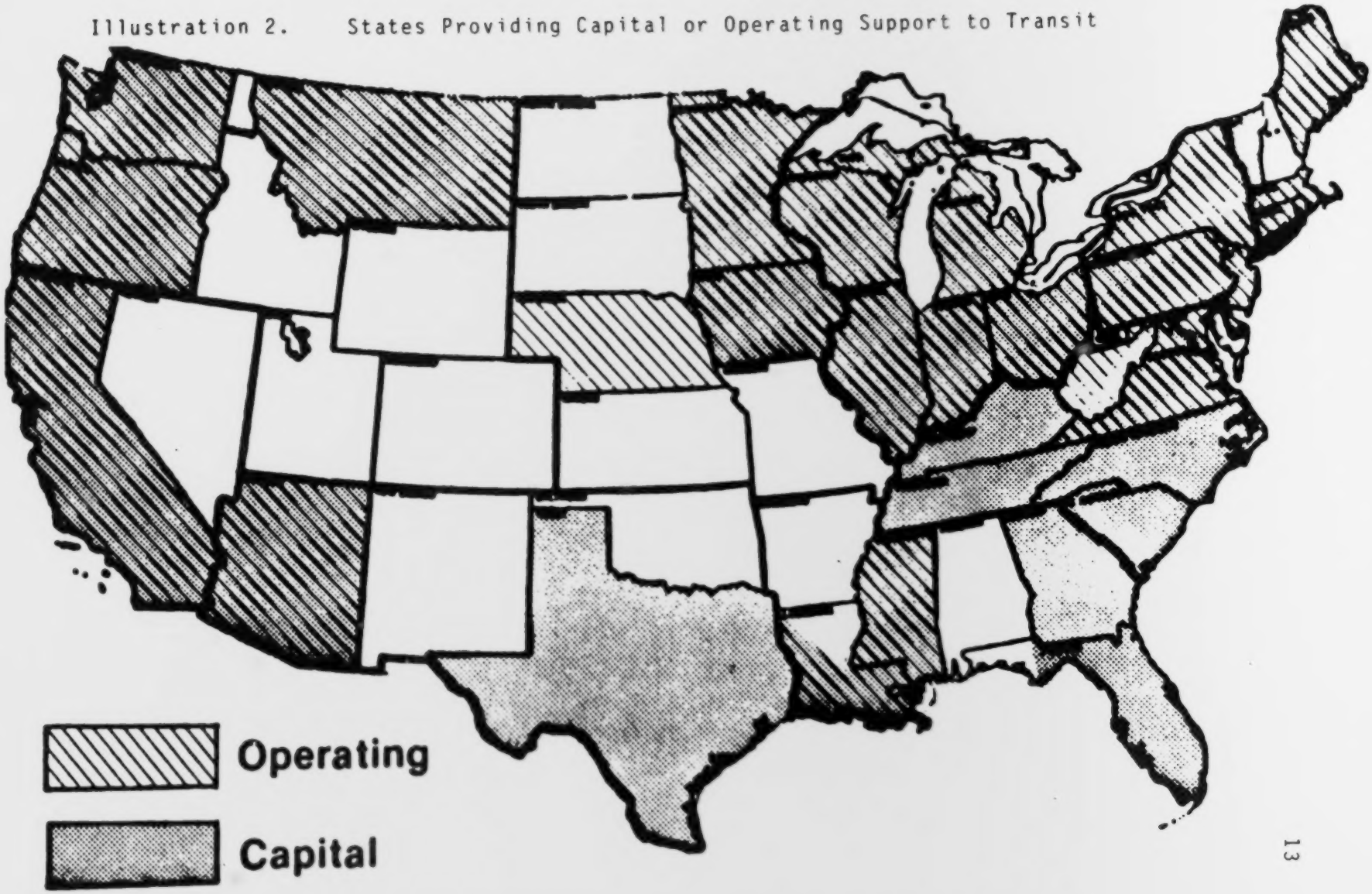
The American Public Transit Association (APTA) reports state assistance for public transit, where it exists, is drawn predominantly from state general funds Local governments are also providing an increasing share of

funding for public transportation. Currently, approximately 15% of the revenues for transit operations comes from the federal government, 12% from state governments, and 30% from local sources. The remaining 43% comes from the farebox. In short, local sources (subsidies plus farebox) now provide well over 70% of local transit operating revenues.

Most federal funding programs require a percentage of local matching funds. Therefore, people in rural areas must consider ways in which to raise that revenue. Transportation planners and the general public in rural areas must develop ways to raise the revenue necessary to acquire matching federal funds. Because the tax base is less in rural areas than in urban areas, it is more difficult to raise the required revenue.

One way a small urban transit operator meets the need for matching funds is through the sale of advertising space aboard vehicles. The Voluntary Action Center of DeKalb County, IL provides transportation service to the elderly and persons with disabilities as well as to the general public. A good part of the revenue generated at TransVAC comes directly from the sale of advertising space on agency vehicles to local businesses.

Illustration 2. States Providing Capital or Operating Support to Transit



Source: American Public Works Association, Institute for Transportation, no date, "Paying for Transportation at the Local Levels: 17 Strategies".

Other revenue raising options include the following:

1. Property Taxes
2. Motor Fuel Taxes
3. Motor Vehicle Fees and Taxes
4. Parking Taxes
5. Tolls
6. Sales Taxes
7. Payroll or Income Taxes
8. Bond Financing
9. Impact Taxes and Special Benefit Assessments
10. Billboard Advertising
11. Advertising on Public Facilities
12. Highway and Transit Financing from a State Lottery
13. Private Subsidies and Incentives for Transit
14. Developer Financing
15. Donations from civic clubs, financial institutions, and other charity organizations

Although these options will vary in applicability depending on the specific location, they are among those listed by the American Public Works Association as some of the revenue raising options available to local transit operations.

Funding Trends and Creativity

Cuts in federal and state support for small urban and rural transit systems have resulted in creative and

innovative solutions to close the gap between the need for rural public transportation and available service. Rural transportation managers struggle with significant problems such as sparse population, special needs, and diminishing funding resources. They often come up with creative solutions. Such solutions in rural public transportation include the use of volunteers, the coordination of existing services, and the use of alternative types of vehicles.

Volunteer Networks

Innovations in rural transit have often been the result of solutions to local transportation problems and were originally designed to serve clients of human service agencies. In fact, the agency mentioned above, TransVAC of DeKalb County, IL is an example of this evolution. It started out as a volunteer network attempting to meet a vast need for transportation for the elderly and persons with disabilities living in the area. As time passed, the requests for service far outweighed the capabilities of the volunteer service. Eventually, Northern Illinois University, DeKalb County transit, and the human service agency joined forces to create a system which could more efficiently meet the needs of the people. Coordination of this kind is commonplace since Congress passed Section 18. This law helped link rural public transportation to human service agencies.

Another example of how a grassroots effort evolved into a successful way of meeting the travel needs of people in a rural area is the volunteer transportation program in northern Alabama. According to Ira Doom and Charlotte Griner, the City of Huntsville and Madison County developed an innovative, cost effective public transportation alternative for low-income rural and urban citizens. The program blossomed from a phone call from G.W. Jones, who resided in Triana, Alabama, a small low-income community of 1,000 near Huntsville. His request was a van in running condition that could be used to provide medical and shopping trips for members of his community, a service which he had been providing himself.

A vehicle was located and put into use. The news spread to the neighboring community, Madison, and soon another van was secured and another public transportation service initiated.

A unique, self-help volunteer transportation program has since evolved. Each group incorporates itself into a nonprofit community improvement association or similar organization. Each community or neighborhood then furnishes drivers, gasoline, and elements of program management including a prescheduling of shopping, medical, educational and recreational trips.

Although the travel needs of the people in this example are being met, cooperation among community members in a

situation like the Huntsville program is critical to the program. Care must be taken so that an equitable distribution of service is maintained and the volunteer service is not monopolized by any one group of individuals.

Many of the innovative transportation systems developed in rural areas are efforts of the local people. The operations mentioned above were started at the grassroots level. The transportation services were designed and developed by the people for the people. There are many advantages to this type of development. Obviously the people of the area are in tune with the transportation needs there. They are also sensitive to the political situation in the community. In other words, local people know the territory--geographically, socio-economically, and politically. Additionally, local people are not encumbered by traditional fixed ideas of how transportation needs should be met. The systems designed by local people to be used by local people are usually small, human-scale operations which use innovative vehicles, management techniques, and operating procedures. However, as these systems grow to accomodate the vast need for transportation in rural areas, they frequently outgrow volunteer efforts. When this occurs, professional management and public operating assistance are usually required.

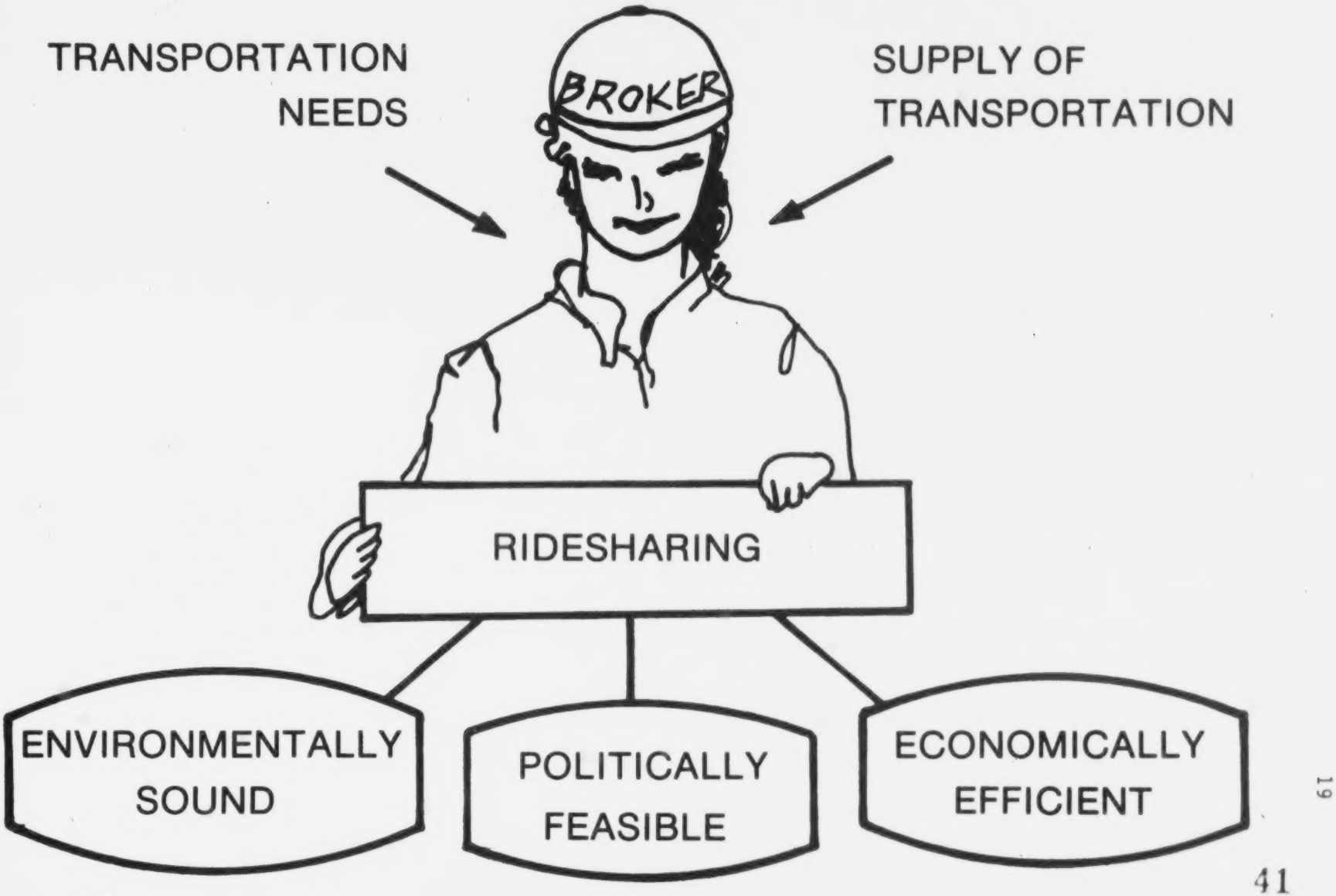
Transportation Brokerage

Transportation brokerage is another innovative way to meet transportation needs. Brokerage is accomplished by matching transportation needs with existing services. Through the use of service contracts a transportation brokerage operation links those in need of transportation service with service providers. Riders are connected with providers like public and private bus and taxi companies, social-service agencies, schools, and individual volunteer drivers. One function that a broker can perform is to match riders with drivers in a ridesharing program. (See Illustration 3, The Broker.)

Brokerage has been used to meet rural transportation needs in formal, as well as informal arrangements. To illustrate, a community network can be formed on an informal basis by community members. This network might consist of volunteers who coordinate riders with rides or who provide services. The network might match the skills and services of volunteers with the needs of their neighbors.

An example of more formal transportation brokerage is the Central Vermont Transportation Association (CVTA). CVTA is a non-profit rural transportation brokerage which serves a rural area of about 60,000 people over 750 square

Illustration 3. The Broker



miles. Regular public transportation service in central Vermont is limited to only those areas of denser population.

In order to better meet the needs of the people in the area, CVTA defines public transportaion as broadly as possible. This definition includes carpools, vanpools, taxis, bus routes, social services, and school transportation. CVTA works with all of these modes of transportation and serves to make connections between them.

CVTA also works to create new services. Emphasized are creative, low-budget, low-capital services that use existing resources as much as possible. The transportation brokerage matches people in need of service with the most appropriate mode. For instance, the school bus system in the area is being used to help provide public transportation service to the people in the area. The school buses not only carry students to and from school, but they also carry the general public to and from activity centers.

The section which follows will provide an overview of existing rural public transportation systems. Described are some original approaches to rural public transportation.

Summary

Meeting the mobility requirements of people in rural areas is difficult due to the typical demographic and geographic characteristics. Changing political and fiscal environments also contribute to the problem of designing appropriate systems for use in rural areas.

This adversity has led to creative, community-based ideas and transportation systems. As these systems grow to meet the increasing need for rural public transportation, the federal funding programs such as Section 18 have become critical to the survival of many.

OVERVIEW OF RURAL PUBLIC TRANSPORTATION OPERATIONS

The purposes of this section are:

- To describe the variety of service providers and operators in rural transportation.
- To describe the modal options typical to rural areas.
- To provide examples of various provider and operator modal options.

Rural areas, if served at all, are often served by a single provider offering infrequent service at best. This is in marked contrast to urban areas, which are typically served by a variety of public, private and specialized transportation providers. The providers in the rural areas may be a taxi operator (perhaps serving three or four towns), an intercity bus operator, a social service agency, or occassionally a public transit operator.

Types of Providers

Transit service in rural areas can be provided by in a variety of ways which include the following.

- A transportation authority which owns its own vehicles.
- A privately owned transportation firm under contract to a transportation authority.
- Human service agencies which own their own vehicles.
- Privately owned transportation firms under contract to human service agencies.
- Privately owned transportation firms such as taxi and intercity bus companies which are regulated by public utility commissions.

Patrons utilizing these options may pay full fares, partial fares such as with user-side partial subsidies, or no fares such as with direct subsidies.

Transportation services in rural areas have taken a wide range of forms. The diversity of funding programs and community needs, coupled with the absence of a single dominant provider, such as a transit authority, have fostered many combinations of institutional and operational structures. Rural transportation services are currently initiated, developed, and operated by social service agencies, non-profit organizations, private operators, local, county, and state government agencies, employers,

cooperatives, and even individuals. Each service may be operated directly by the initiating body or contracted out to another provider. Service delivery may involve either a single sponsor and provider or joint sponsorship and operation. The four basic forms of contracts with service providers are compared in Figure 2.

Institutional and Operational Frameworks

Not-for-Profit

In many locations, agency sponsored and other services are provided through private non-profit organizations. Such organizations directly operate service or serve as brokers, often under contract to local government and/or human service agencies. The most common occurrence is a multi-service agency; one which provides services such as nutrition, recreation, legal, and daycare, as well as transportation to and from the facility.

A different type of non-profit transportation service is the Southeast Missouri Transportation Service, Inc. This operation provides door-to-door transportation service for elderly persons and persons with disabilities travelling long distances to various activity centers.

Figure 2. Contract Types Compared

FORM OF CONTRACT	RISK FACTOR	DISADVANTAGES	ADVANTAGES
Fixed Price	High to all involved, particularly carriers (contract must be executed with minimums and maximums)	Strong disincentive to deliver high quality service since carrier's costs rise proportionately to service rendered	Simplifies agencies budgeting and bookkeeping
Cost Plus Fixed Fee	No risk to carrier since all costs are covered by agency	More bookkeeping effort to monitor service quality, costs, and productivity	Agencies may trade off cost and service quality as desired
Fixed Unit Cost	Low risk even though carriers estimate only standard, not actual costs on a unit basis (such as miles or passengers)	No incentive for carrier to provide high quality service when payment is based on quantity of service units	Carrier may be paid appropriately for the quality of service delivered when the cost units (such as per vehicle hour) are the basis for payment
Direct User Subsidy	Risk is low for all involved	Carrier must be sure that the period for settling bills received is satisfactory and the carrier's cooperation is required for the special method of payment	Users receiving subsidies can be specifically targeted and the level of subsidy to each user can be defined individually

Paratransit in Rural Areas

Paratransit is the group of transportation services on the continuum between the private drive-alone auto and fixed route transit. The practice of ridesharing is one form of paratransit.

Although the number of transportation services in rural areas is relatively small, the range of service options and institutional structures is quite broad. (See Illustration 4, Applications of Paratransit.) Taxis, specialized services, and less structured informal arrangements such as carpooling and hitchiking are all forms of paratransit. Many of the rural services are obviously paratransit, but other forms of rural service, such as the county operated fixed route/fixed schedule bus service can help to provide for the needs of the people in rural areas. Fixed route systems in rural areas frequently serve special market segments and/or operate on a subscription basis. Furthermore, rural fixed route systems are frequently grassroots in nature, having been developed by groups of residents/users to meet very specific travel needs. Illustration 5(a-e) entitled Transit and Paratransit Modes describes the various modes and their characteristics.

Illustration 4. Applications of Paratransit.

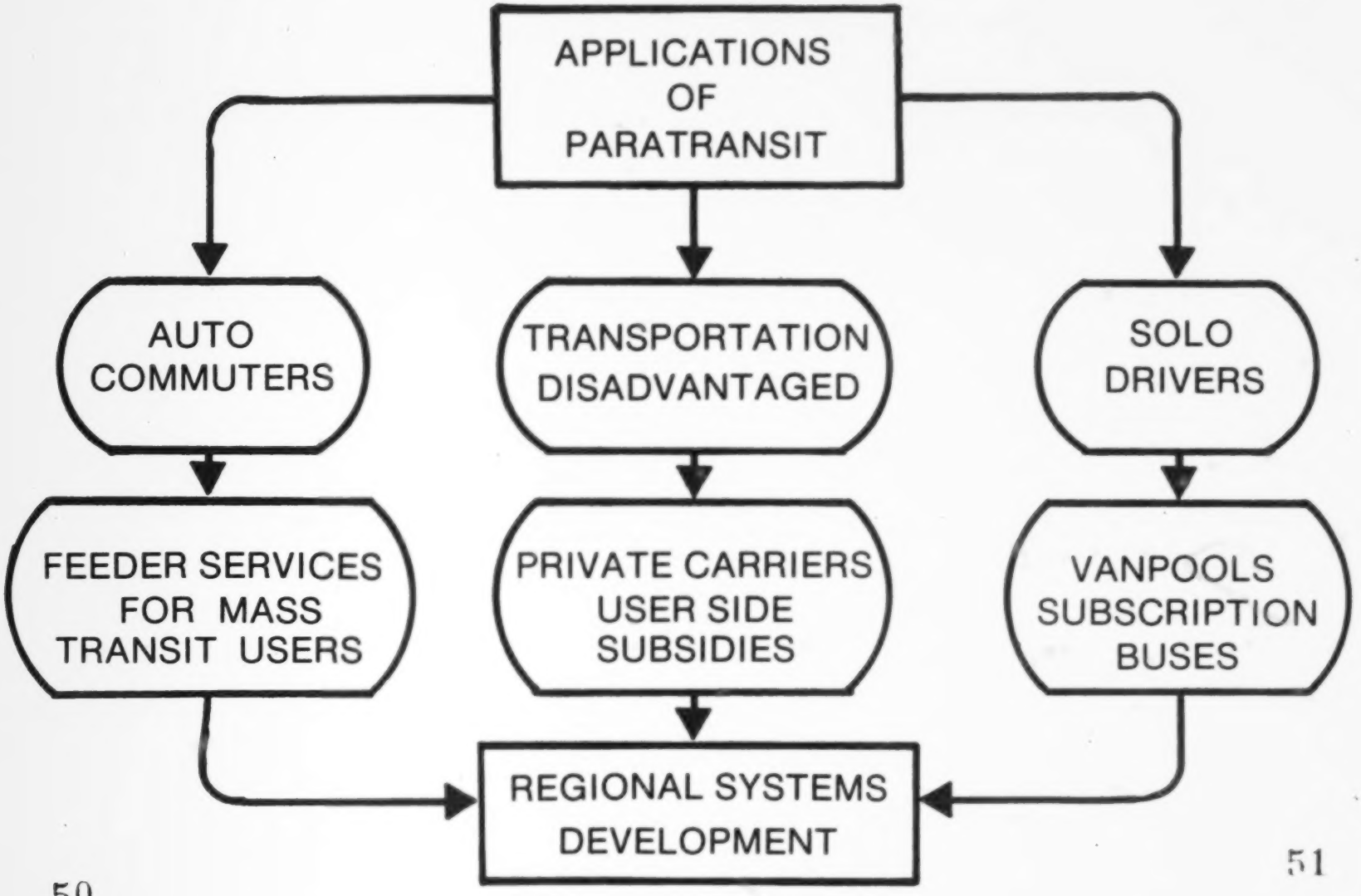


Illustration 5a. Transit and Paratransit Modes.

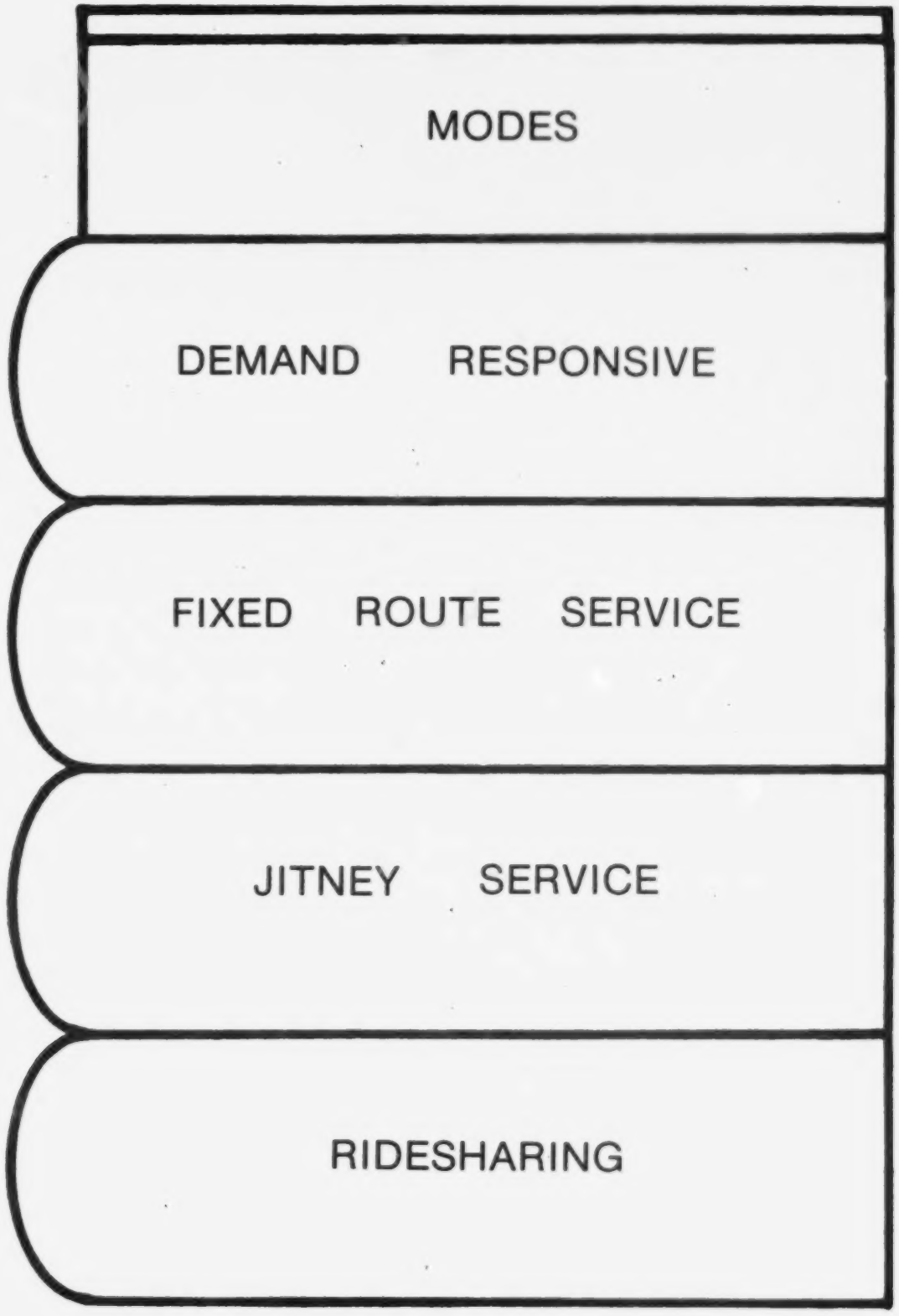


Illustration 5b. Transit and Paratransit Modes (cont'd).

MODE	CHARACTERISTICS	EXAMPLES
DEMAND RESPONSIVE	MEETS INDIVIDUAL SERVICE NEEDS	TAXI SERVICE
	DOOR TO DOOR SERVICE	DIAL-A-RIDE
	SERVICE TO ELDERLY & HANDICAPPED	SPECIAL PURPOSE VANS

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Illustration 5c. Transit and Paratransit Modes (cont'd).

MODE	CHARACTERISTICS	EXAMPLES
FIXED ROUTE SERVICE	MOVES LARGE VOLUMES OF PEOPLE	BUSES
		LIGHT RAIL
	FIXED ROUTE & SCHEDULE	HEAVY RAIL

Illustration 5d. Transit and Paratransit Modes (cont'd).

MODE	CHARACTERISTICS	EXAMPLES
JITNEY SERVICE	VARIABLE SCHEDULE FIXED ROUTES PERSONAL STOPS ALONG ROUTE	MINI BUSES STATION WAGONS VANS

Illustration 5e. Transit and Paratransit Modes (cont'd).

MODE	CHARACTERISTICS	EXAMPLES
RIDESHARING	COMMUTER ORIENTATION LOW COST/QUICK RESULTS THIRD PARTY SPONSORS	CARPOOLS VANPOOLS SUBSCRIPTION BUS

Agency-Sponsored Programs

The vast majority of rural transportation services have been funded through various social service programs. Such services are typically targeted, at least initially, to the clients of local social service agencies, and are often small (i.e., one or two vehicles). However, in order to receive Section 18 funds, many operations have expanded to serve the general public and have grown into fairly large regional systems often operated by private non-profit organizations. Such regional public systems often involve the coordination of several funding sources, and in some instances, the central operator provides service under contract to other agencies.

An example is the Stagecoach project of Bethel, Vermont. Stagecoach was initiated in 1976 by a non-profit community service organization called Faith, Hope, and Charity, Inc. It began as a one-vehicle fixed route operation. The system later expanded to eight vehicles, providing six different types of service:

- fixed route/fixed schedule;
- demand-responsive (through contracts with the social service agencies);
- school charter;
- service for persons with disabilities;
- charter service for local groups;
- commuter subscription service; and

o freight delivery.

Ridership for the entire system in 1982 was over 140 passengers per day. This expansion, aided by receipt of an UMTA Section 18 grant, led to a decision in 1980 to create a separate non-profit organization - White River Transportation Services, Inc.- to manage the system. In this case a small agency-based service grew into its own regional transportation provider.

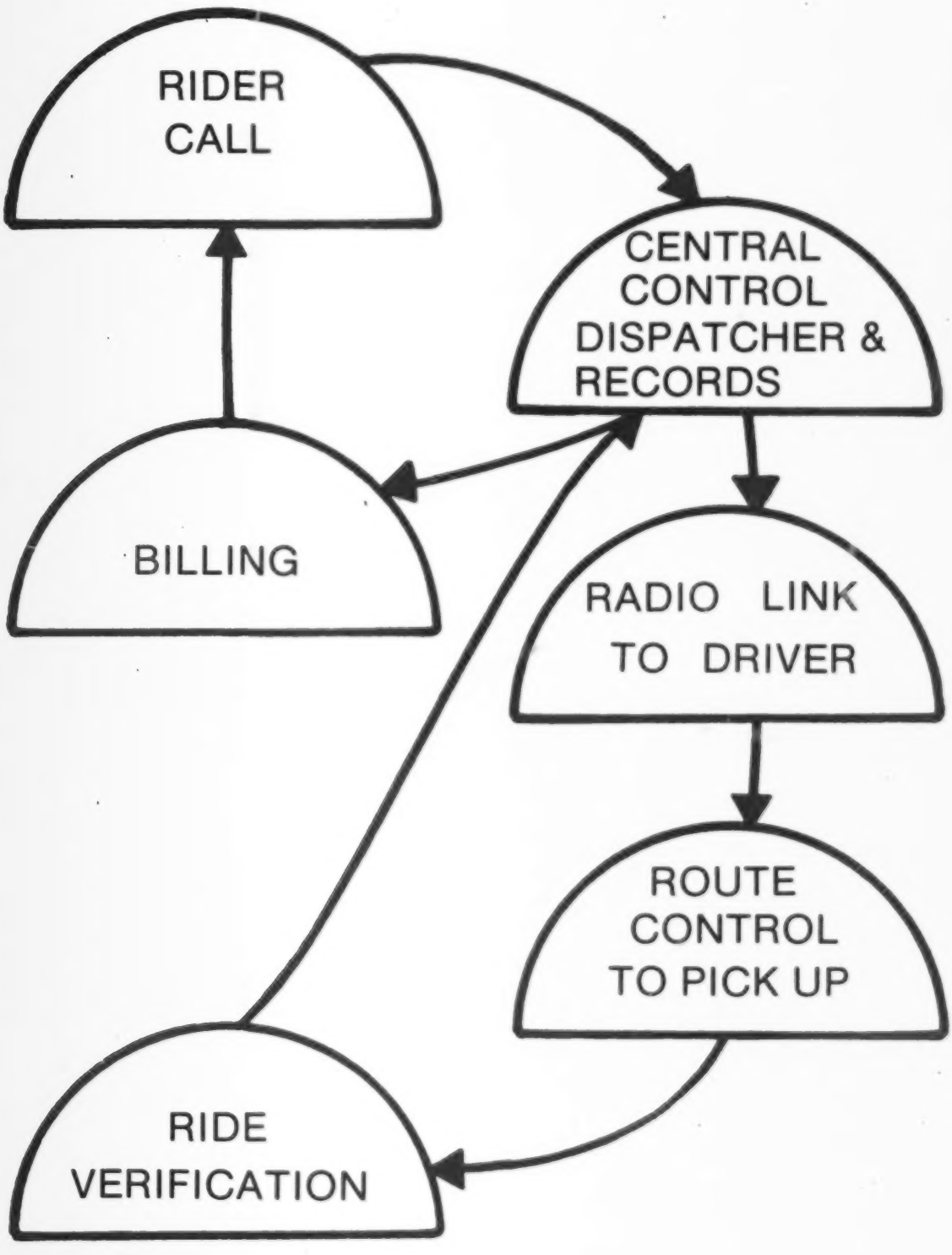
Among the many functions that the White River Transportation Services performs is the intricate management of communication required in providing the demand-responsive service. Such a communication pattern is described in Illustration 6 entitled Communication Pattern for Demand Responsive Systems.

State-Sponsored Services

A number of states have established special programs initiated as federal demonstration projects, many of which later received on-going state funding. The state-sponsored programs cited below are from the Minnesota program.

The Minnesota Department of Transportation (MN/DOT) sponsored a statewide Paratransit Demonstration Program from 1978 to 1981. Projects in a few of the most rural sites will be described here to illustrate such systems.

Illustration 6. Communication Pattern for Demand Responsive System



These examples are Lincoln County, Leech Lake Reservation, Le Seur, and Pine River. The four systems range in size from one (Pine River) to four (Leech Lake) vehicles, and provide several types of service.

These four projects were still operating as of mid-1980. All but Leech Lake were receiving a portion of their funding through Sec. 18. The remaining funds were provided two-thirds by MnDOT and one-third by local sources. In all, 34 of the State's projects were receiving Sec.18 funds in 1980-81, and MnDOT expected to reallocate its Sec. 18 funds so that all eligible projects would receive some federal assistance in 1982. Many other states also have state-sponsored transportation services.

Federally-Sponsored Services

Although the majority of rural systems have been initiated through the efforts of social-service/non-profit organizations and state agencies, the federal government through U.S. DOT has also directly sponsored a substantial number of operations. This sponsorship was originally in the form of the Section 147 demonstration program, which was the forerunner of Section 18. Many of the Section 147 demonstration programs from the 1970's have provided valuable information for the design of transportation operations to meet the needs of people in rural areas.

For-Profit Operator-Sponsored Services

Private for-profit carriers include taxis, private bus companies, and multiple-use transportation operations. These represent important providers in rural areas. In addition to operating totally within the private sector, such firms often provide service under contract to a government or social service agency, or to a broker.

Taxis

Nearly 80% of towns with populations less than 10,000 are served by taxis although 75% of these taxi companies serve 3 or 4 different - and often distant- locations. Taxis are a prevalent rural transportation option, particularly in the eastern and southern regions in the U.S.

Taxi companies have, for example, participated in user-side subsidy programs, such as West Virginia's statewide Transportation Remuneration Incentive Program (TRIP). TRIP was designed to help provide transportation service to West Virginians who have lower than average income levels, are elderly, and/or have disabilities.

The TRIP program provides financial assistance to eligible persons in the form of a user-side subsidy. User side subsidies consist of discounted ride tickets used most commonly by special needs groups such as those with lower

than average incomes, persons with disabilities and the elderly. Ticket coupons worth $8.00 (in 1985) are sold for $3.00; therefore, there is a $5.00 government subsidy to the provider which benefits the user. These coupons can then be used to purchase transportation service by means of bus, taxi or train. TRIP was implemented in June of 1974 through State and Federal sponsorship. The entire process was designed for use by persons who are otherwise housebound--everything from applying for eligibility to receiving the coupons can be handled by mail.

Another example of user-side subsidy is the Kinston Independent Transportation for the Elderly (KITE), of Lenoir County, North Carolina. Kinston is a small rural community of approximately 25,000, located on the central plain of North Carolina. Trip lengths in Kinston are relatively short because of its small land area: 8.9 square miles, and the fact that the closest metropolitan area is 60 miles away.

Eligible users arrange for their own rides and can choose from among six taxi firms participating in the KITE program. Subsidized trips must be taken within the city limits. At the end of the trip, the user pays the fare in tickets. Fares are based on zonal rather than a meter system. Taxicab drivers turn in their logbooks and tickets to the City and are reimbursed within a few days. Since

the end of the demonstration period, the program has continued with Section 18 funds.

Taxi companies also operate many of the rural and small community demand responsive systems throughout the country, including many of the Michigan DART systems, as well as other state-supported systems.

Bus Companies

Occassionally fixed route general market services in non-urban areas are provided by private bus companies, often under contract to, or at least subsidized by, a human services agency or by the local government.

For example, the towns of Winona and Goodview, Minnesota, (1970 combined population of 28,400) undertook a service that uses the same vehicles to transport three submarkets at different times of the day. In the early mornings and late afternoons, the service is aimed at the commuter market and provides regular route transportation to residential and business areas. In the midday, the service is a flexible route service, allowing route deviations to meet the special needs of disabled and elderly persons who require door-to-door service. On weekends and evenings, the service becomes a subscription/charter service.

Summary

Rural transportation services are provided in a variety of organizational frameworks though the most common are social service agencies serving their constituents and private taxi companies providing limited services. Federal and state initiatives are common and their funding is essential. Cooperatives and volunteer efforts have also been successful in many rural areas.

STUDENT REVIEW

1. Discuss the history of rural public transportation and cite examples from your community.

2. Describe the conditions which contribute to the difficulty in meeting the transportation needs of people in rural areas.

3. Discuss the relationship between funding for public transportation and creativity.

4. Describe the various types of transportation providers found in some rural areas.

5. Discuss the applications of paratransit to rural transportationn service.

Please refer to the Activities section in this unit for a more comprehensive understanding of these and other concepts related to rural public transportation.

GUIDELINES FOR STUDENT REVIEW

1. See p. 1.

2. See p. 4.

3. See pp. 14-15.

4. See p. 23.

5. See p. 26.

INNOVATIVE SOLUTIONS IN RPT

The purposes of this section are:

- To provide examples of organizational structures to meeting transportation needs in rural locations.
- To discuss the promise and problems associated with implementing innovative rural transportation arrangements.

Evolving Organizational and Service Arrangements

Providing effective and efficient service in rural areas is difficult under any circumstances. Planners, funding administrators, and operators have developed new organizational and service arrangements to try and meet fiscal and geographic obstacles.

The Cooperative Concept

Mobility Clubs

One method of providing rural public transportation involves the formation of cooperatives. Possible

cooperative members include individuals, transportation providers, and various human service agencies. The cooperative arrangement has been used for providing service in a number of locations.

Mobility clubs are one form of cooperative. An example is the Rural Community Bus Lines of Anne Arundel County, Maryland. In fact, according to Maryland Public Utility Commission, the planned bus operation there could only become certified if chartered as a cooperative. Ironically, there was, at the time, no provision for transportation cooperatives under Maryland law; the law was subsequently changed. This is a good example of how existing regulations can hinder the development of non-traditional services.

The mobility club arrangement can consist of rider-members who have frequent need for transportation and driver-members who are willing to use their own vehicles to provide transportation for others in the club in return for payment. The matching of demand with supply can be achieved through a ride dispatcher, or broker, whose function is to register the travel plans of both riders and

drivers and arrange ridesharing by matching travel needs and compatible opportunities.

One community approach that is being explored in a suburban area, but could be transferred to rural areas, is the Point-to-Point Club in Ardmore, PA. In 1984 the club provided door-to-door escort service to the elderly and handicapped within a four-county area near Philadelphia. Part-time driver/escorts, using their own vehicles, served 280 members at a cost of 20 cents a mile and $8 an hour. Annual membership in the club was $10. Thirty percent of the members use the system regularly. Administrators estimate the service operates at a cost of $4,000 a month or $10 per trip.

The service's users are unusual in that they are more affluent than those of most rural systems and non-fixed routes and schedules are used. Service is provided 24 hours a day, seven days a week, with three days advance notice required. Drivers are paid minimum wage, plus 20 cents a mile. Insurance costs are covered by the driver's normal liability coverage, with administrative and other costs paid by a parent organization.

Insurance costs vary widely among states and are prohibitively high in some. Unless ways can be found to reduce insurance costs, such as through blanket liability coverage, the number of driver-members may need to be

restricted to those who desire to actively participate, or the program may be determined to be infeasible altogether.

For example, Wisconsin has kept insurance costs low through state-level rulings exempting volunteer drivers from having their rates increased because of their volunteer status. Furthermore, it is important that the administrative structure put in place to manage the volunteers does not negate the cost advantage of using volunteers. Despite these problems, the mobility club concept is feasible and could be operated at a low cost.

The potential problem areas to be resolved before a system of this type can be implemented include:

- the regulatory and legal issue of implementing a for-hire transportation system which would compete with existing operators;
- the requirement for increased insurance coverage;
- identification of the actual market for both riders and drivers and the ability of the system to attract them; and
- economic and management considerations.

Another type of cooperative effort is exhibited by the merchants of a shopping mall in Minneapolis. In order to get rural populations to the shopping area, merchants have joined together to pay for a van service for the people living in the neighboring rural communities. This model has also been applied by various restaurants in the area

who provide transportation for patrons to and from sports events.

Transportation Providers Cooperative

In 1982, Rural America was awarded a cooperative agreement by UMTA's Office of Technical Assistance to develop a Cooperative Transportation Project. This demonstration project undertook to identify how, in times of restricted budget, rural communities might initiate or expand existing transportation services by establishing formal joint cooperative networks with citizens, local government, and the private sector. Under this cooperative agreement, Rural America assisted in developing cooperative transportation projects, two of which are in Central Vermont and Central Virginia.

In Central Virginia transportation providers set up a transportation network to share information and operating data, develop common reporting methods and establish joint training programs for managers and drivers. The Central Virginia project participants designed a mechanism for the time-sharing of vehicles, ride-sharing of passengers, and coordination of a joint effort to purchase parts, supplies, and insurance. Additionally, a radio frequency is shared between three-counties.

The Transportation Providers Cooperative, operating out of New Canton, Virginia has a core group of operators (some 20 providers) participating in the cooperative which extends throughout a 17 county area. The cooperative's primary concern is bringing together the transportation providers from both the public and the private sector, including independent taxi service, vanpool service, and a small city bus system. The project is currently (1985) being funded by UMTA's Service and Management Demonstration Division so the operators who participate can do so without having revenue generation for the service as their primary concern.

In 1984 it was determined that the foremost need of the providers was information sharing. To meet this need the staff performs the role of resource persons for the operators. They do the organization for research and referral to address problems experienced by the providers.

Tasks the cooperative is undertaking include networking among the providers. Such networking allows the operators to cut costs while maintaining a high level of quality. For example, the taxi and vanpool operators were originally reluctant to cooperate with each other due to the competitive nature of their business. When the two providers met at one of the ongoing roundtables and discovered that they shared common interests in vehicle maintenance, they realized that by working together they

could not only save money, but also share information gained throughout their years of experience as providers of transportation.

The Central Vermont project, involving the White River Transportation Service (Stagecoach), demonstrated the use of volunteers in the management and operation of the system. Stagecoach planned to expand its service area with the assistance of the volunteer dispatchers and community participants.

Rural America has been very effective in increasing public awareness of rural transportation needs through information dissemination. The Rural Transportation Reporter, Rural America's bi-monthly rural transportation newsletter provides valuable information on current issues and federal developments. As part of the project, Rural America also provides consultant services and maintains a rural transportation information clearinghouse.

Another type of cooperation between transportation providers is between the Morgantown, West Virginia city bus system and West Virginia University. The two providers have agreed to split the cost of providing transportation service to persons with disabilities who live in Morgantown so that they ride free of charge.

Multiple Use

Although common in many European countries, there are few examples of multiple use transportation operations in the United States. Such operations are those in which vehicles primarily used for other purposes, such as mail distribution or school transportation, provide regular passenger transportation.

The Postal Bus Concept

One type of multiple use arrangement which has promise for providing public transportation is the postal bus concept. This concept involves transporting passengers in vehicles which also distribute and collect mail along designated routes. On these rural routes mail is distributed from regional centers to post offices and then collected later in the day. Under the postal bus concept, these carriers would transport passengers to and from the regional offices and post offices along the route.

No U.S. Postal Service regulation prohibits the combination of rural route postal service with passenger transportation. In fact, the U.S. Postal Service may pursue contracts with passenger common carriers when their routes and schedules fit postal service needs (39 U.S. Code 5214). Concerning passenger service, the provisions

require that mail not be delayed by passengers or be accessible to them.

Over the past decade, at least six European countries (Sweden, Switzerland, Germany, Austria, England, and Scotland) have successfully combined the delivery of mail with the transportation of people.

There are a few known examples of postal bus services in the U.S.; two of these are located in California: the Mt. Lassen Motor Transit Company and the Kernville Stage and Freight Lines (located in Barkersfield). As of 1981 both of these operators were carrying passengers as a secondary service on the mail route. Despite the low ridership levels of between two and four persons per day, the costs of carrying passengers were low. Major increased costs in postal bus/passenger arrangements are for insurance and possibly vehicle modifications to accomodate passengers. Operators can usually make some profit on passenger service. The potential for some additional profit with little extra investment may appeal to mail contractors although some will be unwilling to take on the additional administrative burden of arranging and publicizing the service.

West Virginia's Department of Human Services undertook an extensive endeavor in the design of a postal bus demonstration program for rural Pocahontas County. The Department proposed that the entire county be served by a

postal bus system. The regional transportation authority would contract for passenger transportation with the individual postal route contractors, so that the regional transportation authority could manage and coordinate transit services without being responsible for mail transportation. It was determined that seven vehicles would be required, each with right-side driver placement, partitions to separate the driver from the passengers, heavy-duty construction, and access convenient for the elderly and persons with disabilities.

This project never reached the implementation stage primarily due to the U.S. Postal Service's unwillingness to participate. Although the postal service noted no insurmountable legal hurdles in the plan, the belief that the administrative problems would be monumental stopped the project's implementation. A small trial program might have better allowed the Postal Service to test how difficult the program would be to administer.

School Buses

The use of school buses as public transportation can help meet the need for transportation in rural locations. Idle school buses, or those with excess capacity, represent a major existing transportation resource which may be subject to more efficient utilization. School buses have already been used to some extent to provide general market

transit or service for the elderly. Several studies have been undertaken to determine the feasibility of using school buses to help meet the transportation needs of people in rural areas.

Although the use of idle school buses represents a potential for providing service in rural areas, there are restraints involved when using school buses for public transportation.

- Legal and Institutional Barriers -- Many states or local school districts prohibit the use of school buses for any function other than school-related transportation. Some regulations specify non-use by the general public, but allow use by the elderly or other target groups. Similarly, liability insurance can be a barrier to the implementation of school buses as public transportation.
- Availability -- Unless excess vehicles exist, the school bus fleet is only available in the early morning, evenings, and between the hours of 9 a.m. and 2 p.m. weekdays. Some studies conducted in the U.S. have addressed the simultaneous use of school buses for students and the general public and have reached the general consensus that mixing these two market segments is inappropriate. This type of attitudinal barrier can halt the implementation of the innovative use of school buses for public

transportation. However, this approach has been operating successfully in parts of Europe and Asia.

- Vehicle Specifications -- The design features of school buses make their use especially difficult for the elderly, persons with disabilities and adults in general. For instance, the seats are positioned four inches closer together than than they are in transit buses.
- Operational Considerations -- The operating costs per mile for school buses are high compared to those of smaller vehicles. The sparse populations in rural areas make it inefficient to operate a large vehicle. Furthermore, if the buses were used over a longer period each day, insurance costs would probably increase.

A demonstration project in Morehead, Kentucky put a bus that had been purchased for extra-curricular activities into action for service along a fixed route. The actual problems of using a school bus in this case were discovered to be psychological rather than the result of physical limitations of the vehicle. The perceptions of the residents had to be altered before they felt comfortable using the school bus.

Other rural transportation projects which have used school buses for public transportation include a Pennsylvania Department of Agriculture system and Senior

Citizens Transportation, Inc. of Rhode Island. Additional demonstrations have been tried in Lewiston, Idaho; Hancock County, Tennessee; and Cape May County, New Jersey.

Despite the limitations, the school bus option can provide service in areas which have no alternative form of public transportation. Making optimal use of existing service can mean the difference between limited or no transportation service.

Summary

Existing services and new ideas for rural transportation can be combined in many ways. It is only through direct experimentation with ideas, such as postal bus use, cooperatives, and school bus use that workable, effective and cost-efficient systems can be devised. Each new system must be demonstrated and overcome institutional, attitudinal and financial hurdles before it can be proved a viable innovation.

NEEDS-BASED PLANNING IN RURAL AREAS

The purposes of this section are:

- To illustrate the needs-based approach to planning.
- To describe the process of market segmentation.

Needs-based vs. System-based

The inherent problems of designing transportation systems in rural areas include sparse populations, cutbacks in federal funding, lower than average income levels, needs for special services, and rough terrain. The traditional way of planning transit systems in urban areas is not appropriate for planning in rural areas. Such planning has emphasized fixed-route systems which use large buses. Because of the characteristics of rural areas such as sparse populations and lengthy trips, these fixed-route systems with large buses are not appropriate.

The skills which are helpful for system-based planning are critical to mobility-based planning. These skills include understanding the decision-making and problem-solving processes, maintaining sensitivity to the

needs of the users, being able to correctly analyze and apply information, and keeping up with the everchanging political, fiscal and regulatory environments.

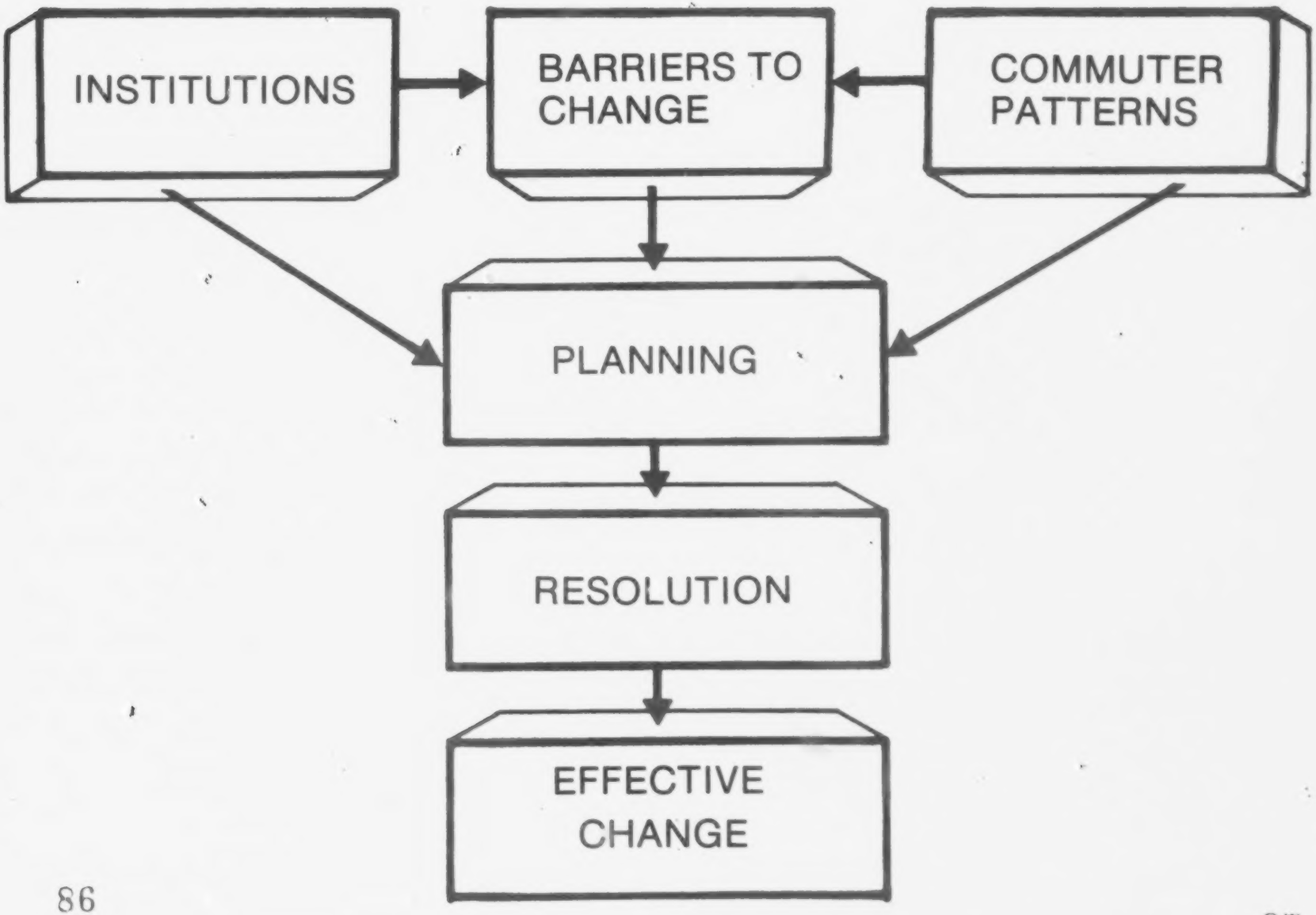
Rural public transportation today involves a variety of transportation modes with varying characteristics. In planning transportation in rural areas, individuals must draw on new tools and techniques which can aid in the process.

Instead of focusing on transportation systems, the effective rural transit planner begins by studying the mobility needs of the people to be served; understanding the travel patterns of those people; and planning a service which is appropriate while overcoming any obstacles to implementation. Illustration 7 describes a model for effective change.

General characteristics of the needs-based approach to transportation planning include the following:

- the focus is on meeting the mobility needs of the people in the area;
- the local people are involved in arranging flexible services utilizing a variety of modes; and

Illustration 7. A Model for Effective Change.



- innovative and creative solutions are used to meet transportation needs, including contractual arrangements with private and public operators, brokerage, and volunteerism. (See Illustration 8.)

Market Segmentation

Market segmentation is a needs-based or market approach to transportation planning by which basic marketing principles are applied to the specific transportation needs of local people in order to better target expenditures. The concept of market segments comes from the need to analyze a wide spectrum of consumers or users to determine sub-groups which share similar characteristics or needs.

The first section of this unit described the characteristics of the market segments most commonly found in rural areas. Typical rural market segments include the elderly, persons with disabilities, persons with lower than average income levels, single female household heads, and those with limited or no access to a private automobile. By grouping and analyzing the needs of the market segments, transportation planners become more sensitive and are better able to design efficient systems which meet local needs.

There are four basic steps to the needs-based approach:

1. Market Segmentation Analysis
2. Assessment of Existing Services

Illustration 8. Planning for Brokerage.

3. Analysis of Unmet Needs

4. Targeted Design

Figure 3 describes the objectives and some of the activities related to each step.

Market Segmentation Analysis

Through market segmentation analysis, a transportation planner will come to know the types of trip destinations of the people in the area. Some of the common destinations are trips to work, to health or nutrition centers, and to central business districts for banking, shopping, or social needs.

Sources of quantitative data available for understanding the population of the area include census data, local political records, the Chamber of Commerce, county, and regional planning commissions, previous studies of the area, local offices of the State Highway Department, the Federal Highway Administration, and industrial and commercial organizations. Needs assessment studies have been conducted by Area Agencies on Aging, Independent Living Centers and others. These studies are available to help determine the market segments of a particular location.

Qualitative sources of information include simple questionnaires, informal interviews, telephone surveys,

Figure 3. Outline of Market Segmentation Analysis

	Objectives:	Activities:
Market Segmentation Analysis	* who needs service * what services are needed * what criteria most influence travel choice	* research of public records * surveys of population samples * analysis of existing literature
Assessment of Existing Services	* what systems already exist (public and private) * how efficiently and effectively are existing systems performing	* analysis of distribution of existing systems * analysis of performance factors * determination of characteristics of existing systems and rider satisfaction
Analysis of Unmet Needs	* geographic service gaps * gaps in rider satisfaction * which existing systems can be better utilized	* analysis of market segmentation data * analysis of assessment data * comparison of market segmentation and assessment data
Targeted Design and Implementation	* how can existing systems be modified * what new systems are needed * what are the costs of modifications and new systems * what political and financial considerations must be accounted for	* design and costing of existing system modifications * design and costing of new systems * analysis of local political and financial concerns

discussions with community groups, local officials, directors of organizations, and existing national studies about the attitudes of generalized groups of people. A combination of data from these sources should provide the information necessary to design a transportation system to meet the mobilty needs of rural people.

Assessment of Existing Services

In most areas there exists some type of transportation service. Whether or not that service is adequate is quite another question. As determined earlier in this unit, people living in rural areas have taken steps to close the gap between mobility needs and services provided. Efforts such as the creation of informal transportation networks and daily hitchhiking are often the only means of access to human services and activity centers.

The information derived from the market segmentation analysis is useful only if it is compared to the existing services. Frequently performance data of formal services already exists and is available from the providers or government agencies. However, in rural areas, formal public transportation service is often not available, or is minimal.

In the event that service does exist, the planner(s)

can evaluate the services by asking two very general questions:

1. What is the nature of the service provided?
2. Is this service being provided in a cost-effective manner?

The nature of existing services can be described in terms of what service is being provided when, where and to whom. Operational factors are those which are determined by management decisions and define the nature of the service. The economic evaluation determines the present operation as it exists and possible modifications which could improve it's efficiency.

The results of the assessment of existing services will depend on the type of system which is evaluated. For example, a demand-responsive service which uses vans equipped with wheelchair lifts can help meet the mobility needs of a special group of people and would cost more than an operation which did not use lifts. Furthermore, such specialized service is often necessarily restricted to use for transportation to and from health or medical programs. In such cases, individuals would have access to transportation for trips to health facilities, but these same persons would have no way of getting to and from other activity or recreational centers. All factors should be considered in the decision-making process. Once the

assessment of existing services is accomplished, the comparison with the market segmentation is done.

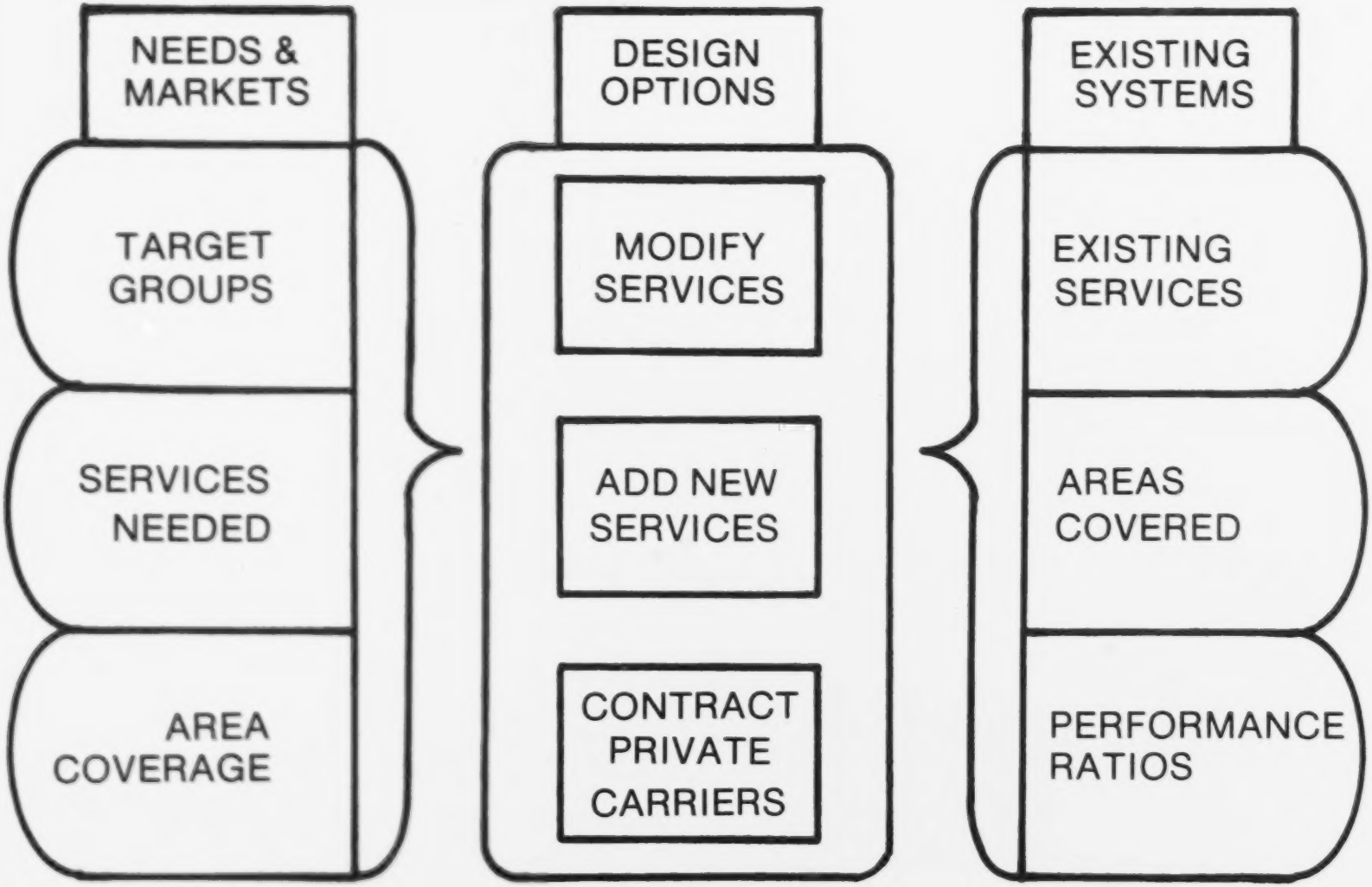
Analysis of Unmet Needs

A comparison of the data from the market segmentation analysis and the assessment of existing services will reveal the unmet needs of the people in the area. Service gaps can appear in several forms or combinations which include specific trip demand, special user groups' needs, and unserved geographic locations. (See Illustration 9 entitled Utilization of Assessment Plan.)

An example of transportation service gaps among special user groups is recognized by human service agencies. These agencies have typically supplied the only means of transportation to the elderly and persons with disabilities. Such service, if available, is infrequent and geared to specific agency programs. Due to financial restrictions, the service commonly extends only to those specific programs, and not to the multitude of other travel needs. Service of this type can help to diminish the feelings of isolation expressed by some residents of rural areas. However, not all persons living in rural areas qualify for these services.

Determining unmet needs requires analysis of market segments and of existing system data. Possible service

Illustration 9. Utilization of Assessment Plan.



gaps are examined to determine how they can be met by re-designing existing services, designing new services, or a combination of the two.

Targeted Design

The fourth step in market segmentation is designing a system which fits the intended user. Targeted design is a two-phase process. The planner(s) first design or redesign appropriate transportation options based on the needs of the people and with their continuous input. At the same time, the political and fiscal environments must be continuously assessed to determine the feasibility of implementing the resulting design.

As with the previous three steps, this is best accomplished with the input from those for which the system is intended. It has been proven time and again that systems designed <u>for</u> potential users and not <u>with</u> these users are destined to fail.

The Rural Planner's Role

Needs-based planning provides parameters for new systems and the criteria for improving any existing systems. The factors which most influence a design are:

- The needs of the people;
- The size of the groups;

- The location of unserved groups; and
- The economic feasibility and characteristics of modes and vehicles.

In designing a transportation system for use in rural areas consideration must be given to the logistic, technical, economic, and social factors.

Logistics such as coordinating services to meet the most needs; technical factors like special needs modifications such as lift chairs; economics such as capital and start up costs; and social impacts like what groups will benefit from a certain service are all considerations in designing or redesigning transportation systems in rural areas.

The political and fiscal environment for rural transportation planners is constantly changing. This demands that a planner be aware of changes affecting the decision-making process. Sensitivity to changing conditions and flexibility in response are also required. The planner must be able to competently define the problem and approach the problem-solving process in an appropriate manner. Open communication with people in the area is an important part of this process.

The successful rural transportation planner must maintain current information about federal and state regulations which affect the program. For instance, Section 105(f) of the Surface Transportation Act of 1982

requires public transportation systems to commit 10 percent of all contractural opportunities to disadvantaged minority-owned business enterprises (DBE's) and one percent to women-owned business (WBE's). Such regulations are of importance to transportation planners, particularly those contracting for service. Illustration 10 portrays the transportation planning process.

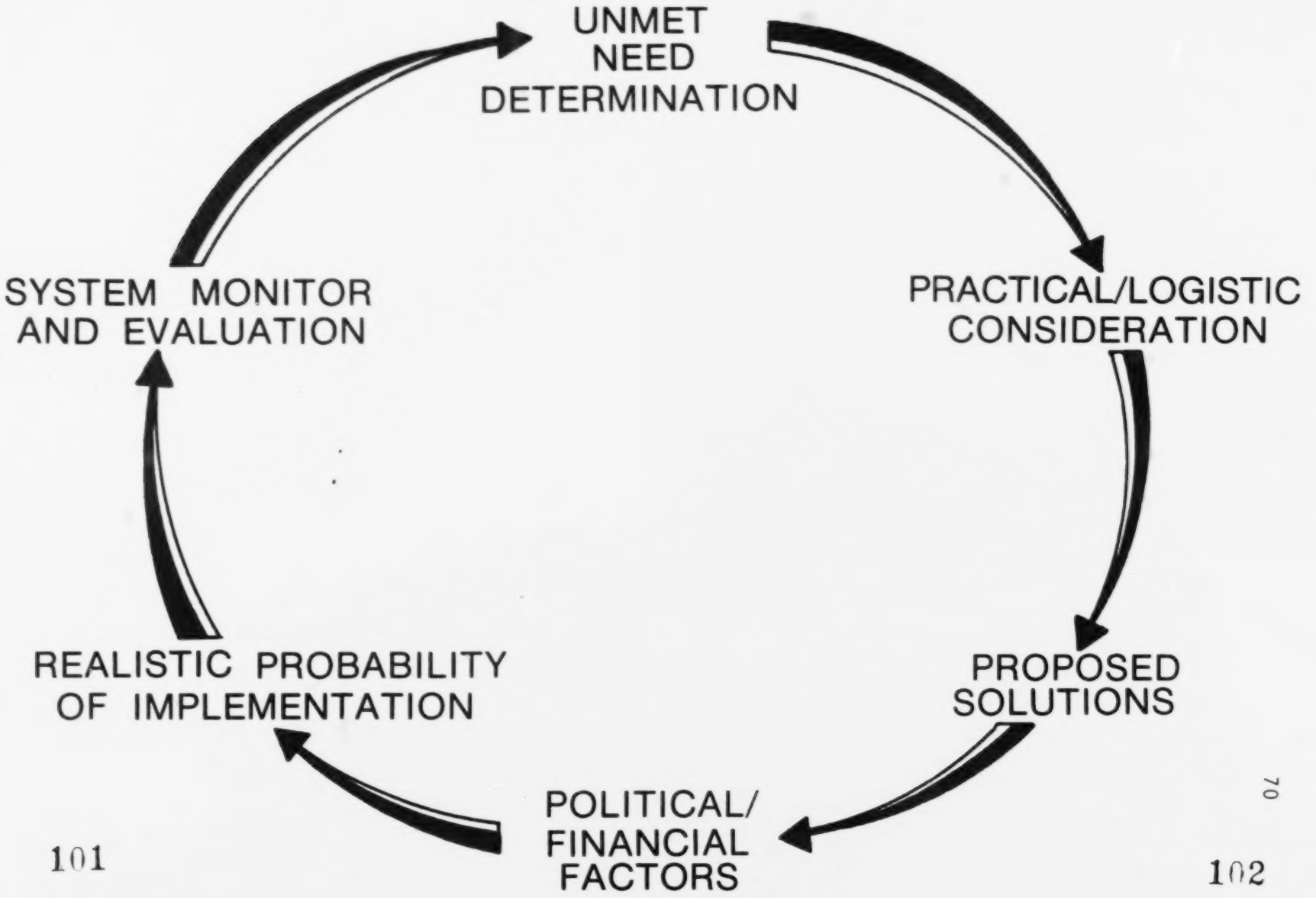
Planning Rural Transportation Service: An Example

Although transportation planning, especially in rural areas, is a complex process, it can be done by professional planners and lay people alike. In fact, many rural operations were started as local efforts. One example of community based planning which grew to a large, successful system is the organization called OATS.

OATS, Inc., located in Missouri, is a not-for-profit transportation company specializing in service to elderly and disabled persons. In 1982 OATS had 145 vehicles on the road which travelled some 3 million miles, providing 550,000 one way trips.

The origins of what is now known as OATS began in 1970's when a small group of older persons in central Missouri recognized the unserved needs of an increasingly elderly population in the state. With intial funding from the state's Office on Aging and technical assistance from

Illustration 10. Transportation Planning Process.



the University of Missouri's Extension Division, CTS purchased three vehicles, hired a paid staff of five including a director, a part time secretary and three drivers.

The following section will describe some of the factors considered when designing a rural public transportation for implementation. The various techniques necessary to help ensure the system's success will also be discussed.

Summary

Through the use of the four steps of market segmentation analysis, the travel needs of the people in the area can be more competently met. By (1) assessing the needs, (2) assessing the existing services, (3) comparing these to determine where the gaps occur, (4) and designing a system which is targeted to meet the needs and is feasible to implement, transportation service can be planned which is appropriate for the various user groups living in a specific location.

STUDENT REVIEW

1. Discuss the positive and negative qualities of meeting rural transportation needs with innovative solutions.

2. describe the skills which are critical to transportation planners who choose the mobility-based approach to planning.

3. Discuss the general characteristics of the needs-based approach to transportation planning.

4. Discuss the objectives and activities related to each of the four basic steps in the needs-based approach to planning.

5. Construct a transit needs assessment survey or questionnaire aimed at students of your university or people in your community which would reveal groups that need regular transit service.

6. Discuss the possible barriers to the development and implementation of the mobility club concept.

Please refer to the Activities section of this unit for more comprehensive work in rural public transportation.

GUIDELINES FOR STUDENT REVIEW

1. Open ended discussion.

2. See pp. 56-57.

3. See pp. 57-59.

4. See pp. 61-62.

5. Open ended question.

6. See pp. 43-46

DESIGNING FOR IMPLEMENTATION

The purposes of this section are:

- To describe factors to be considered in the design and implementation of Rural Public Transportation.
- To familiarize the student with techniques for ensuring the successful implementation of a rural transportation operation.
- To illustrate how selected operations have achieved varying degrees of success.

Transportation planners should have a thorough understanding of the diverse groups of people and the institutions which make up the rural environment. Planning optimal transportation service does not ensure implementation. The implementation phase involves planning factors related to the legal, regulatory, political, attitudinal, financial and technical components of a system. These planning factors affect the implementation of any transit plan.

Similarly, operational factors, such as the role of vehicle drivers, efficient management of information and marketing, can enhance the implementation process.

Basic Design Considerations

Financial

The average rural community has no public transportation because:

1. Costs to set up and implement a program are considerable. These include organizational costs of planning and administrative costs of management.
2. Revenues are insufficient to cover the high initial cost of start-up, and in many cases longterm ridership would be so low that the farebox revenue would cover only a small portion of the operating costs.
3. Subsidies are not available and many states have no program to provide operating assistance to rural areas. The federal Section 18 funds average about 2 million dollars per state, and consequently cannot be expected to serve the majority of rural communities.
4. The tax base revenue in rural areas is less than urban areas, so there is a lower amount of revenue coming in from fewer people.

Cutbacks in federal funding as well as the inability of local communities to support organized transit systems are considerations of utmost importance in implementing a system. Cost constants which apply to the implementation

of any transit system are operating costs, capital costs, and start-up costs. Actual figures differ because each community is unique. However, developing a budget for the operation must be done in order to ensure the viability of the system. Figure 4 is a sample budget from one service in a rural area in the middle Atlantic U.S.

Political

Local political interests frequently support particular groups, systems, or neighborhoods. These interests are important to consider when planning transportation programs. By including as many of these persons in the planning stage, their interests can be considered at a stage of the planning process where their input is valuable and usable.

Legislative

Transportation planners nust be aware of the changes in the legislature which effects their decisions. For example, conflicts between service providers can occur where conventional transit service is competitively challenged by paratransit or pooling arrangements. Although this situation is generally uncommon in rural areas, transit workers must be consulted in accordance with the Urban Mass Transit Act of 1964. Section 13(c) of that

Figure 4: Sample System Operating Budget

FY 86 PROJECT BUDGET

(1) TOTAL NON-OPERATING EXPENSES (Itemized)

Manager's Salary	$ 22,102
Secretary's Salary	-0-
Staff Salary Other	15,435
Fringe Benefits	13,873
Audit Costs	3,500
Board Expenses	975
Contractual Services	5,300
Garage/Storage Costs	5,500
General and Administrative	275
Insurance - Other (Specify)	1,605
Marketing	9,000
Office Equipment	-0-
Office Maintenance	290
Office Supplies	1,400
Printing/Copying	1,500
Rent	3,750
Taxes	380
Telephone Services	3,600
Travel	5,100
Utilities	4,000
Vehicle Insurance	30,000
Other (Specify)	1,250
TOTAL NON-OPERATING EXPENSES	$ 128,835 (1)

(2) TOTAL OPERATING EXPENSES (Itemized)

Drivers Salaries	$ 143,911
Dispatcher' Salary	-0-
Mechanics Salaries	29,135
Fringe Benefits	51,493
Contracted Vehicle Maint. Svcs.	-0-
Fuel	71,000
Hand Tools	600
Licenses	-0-
Oil	1,350
Replacement Parts	20,000
TOTAL OPERATING EXPENSES	$ 317,489 (2)

(3) TOTAL PROJECT COST (Line 1 plus Line 2) $ 446,324 (3)

(4) LESS FAREBOX AND OTHER REVENUE (i.e., CONTRACTS WITH OTHER AGENCIES AND OPERATORS

REVENUES

Farebox Cash	$ 99,623
Farebox Tickets	8,820
Contracted Revenue	4,184
Other (Specify)	453

TOTAL FAREBOX AND OTHER REVENUE APPLIED AGAINST ELIGIBLE EXPENSES $ 113,080 (4)

(5) NET PROJECT COST (Line 3 minus Line 4) $ 333,244 (5)

(6) TOTAL NET PROJECT COST FOR SECTION 18 PROGRAM $ 333,244

(7) FEDERAL SHARE (Section 18; 50% of Line 6) $ 166,622

(8) LOCAL SHARE (50% OF Line 6)

A. CASH MATCH

a. Local Cash	$ 19,622
b. Charter Profit	2,000
c. Advertising Profit	5,760
d. Other (please specify) Interest Income	1,200

B. LOCAL CASH

a. State Funds: $138,000
b. Local Government: $ 19,622 + b + c + d = $ 28,582

Source: State of West Virginia, Public Transportation Division

act states that any new system which might adversely affect transit workers' jobs must include provisions to ensure that no worker be displaced.

Jurisdictional

Private carrier groups such as taxi and bus operators own franchise rights to certain jurisdictions. Yet demand-responsive transportation and user-subsidy programs may require that cross-jurisdictional services be provided to be effective. The planners of transportation programs must respect the rights of private carriers and assure them that their participation in the service might actually increase ridership and will not harm existing programs. Similarly, in the case where both the county and the city offer service to an area, some crossover may be experienced. In many cases agreement can be reached between the providers to cooperatively work schedules so that the area is serviced.

Technical

Some persons with disabilities and elderly persons may have special transportation needs. In designing a transportation service, these special needs must be recognized as they relate to vehicle selection or adaptation and to the local geographic conditions. Proper

needs-based planning can avoid inappropriate system designs, whether rural or urban.

Attitudinal

Respect for the attitudes of the various groups in the community can enhance the development of the operation. For example, understanding the social factors inherent in the informal networks of various groups can be critical to the design of systems. For instance, when designing a multiple use program like a school bus which also carries the general public, the parents of the children should be consulted with regard to their attitudes about the program.

Legal

Attempts to help close the gap between transportation services and mobility needs are sometimes blocked by the interpretation of existing laws. For example, the use of non-traditional transit vehicles, such as vans, revealed problems in the interpretation of insurance rate categories. In many states, vanpools were originally classed by law in the same high-risk category as private business vehicles. This was necessary as virtually no experience with vanpools was available for the prediction of risk.

Progress in this area has occurred throughout the country in the past decade. From the experience in large part provided by the UMTA-sponsored demonstration projects, the insurance industry has been able to more accurately predict risk factors. Consequently, many states have reformed laws to permit a separate insurance rate category for vanpools.

These factors effect the implementation of transportation service in any area. Planners must work with the various members of the community in order to avoid unneccessary difficulties and to design service that is appropriate to the needs of the community. Illustration 11 and Figure 5 describe some of the individuals from the community who should be involved in designing transportation service.

The Role of Vehicle Drivers

The drivers of the vehicles are frequently the only contact riders have with the rural transportation service. Driver sensitivity to the needs of the users is critical to successful service. The benefits of driver training include:

- reduced likelihood of injury;
- improved efficiency in operation;
- increased confidence of the user in the system;

Illustration 11. Principal Groups Involved in the Transportation Decision-Making Process.

Source: Technology Sharing, 1978, p. 29.

Figure 5. Principal Groups Involved in the Transportation Decision-Making Process.

GOVERNMENT	CITIZEN GROUPS	BUSINESS COMMUNITY
Local	Advisory Boards	Chamber of Commerce
County	Fraternal Organizations	Developers
Metropolitan	Howmowners	Labor Unions
Regional	Individuals	Merchants
Special District	League of Women Voters	Newspapers
Transportation Authority	Neighborhood Groups	Taxi Companies
State Department of Transportation	Parent Teacher Associations	Transit Operators
Other State A-95 Agencies	Peace Groups	
Federal Department of Transportation	Religious Groups	
Other Federal Agencies	School Groups	
Law Enforcement	Service Clubs	
Public Safety Agencies		
Welfare		
Health Agencies		

SOURCE: Technology Sharing, 1978, p. 29.

- reduced liability suits; and
- reduced scheduling difficulties.

Some driver sensitivity training uses role-playing as a technique. Drivers of special transportation services are either blindfolded or confined to a wheelchair for a matter of hours. They are then asked to use the transportation service. This role-playing technique provides the driver with a sense of how the user experiences transportation service being provided. It not only sensitizes the drivers to the special needs of the user, but also helps them become aware of how they might aid disabled or elderly persons in using the transportation services in a more effective manner.

This sensitivity enables the driver to perform acts of assistance, therefore decreasing the risk of injury to the user. Sensitivity to the amount of time needed for the manipulation of wheelchairs improves efficiency in scheduling.

Consolidation and coordination of transportation services are frequently done to eliminate duplication of services. This effort in eliminating duplication of services can sometimes create problems in equitable allocation of funds among the agencies or operators providing the services.

Likewise, in cases where service is being provided to populations with special mobility needs, such as the elderly and handicapped, the human service agencies, who are most familiar with their client's needs, question whether the service being provided is adequate. Driver training can help in this situation. Training which increases the sensitivity of drivers to the riders special needs should relieve doubts the agency may have about the adequacy of the service.

One example of training designed for drivers is the Passenger Assistance Techniques (PAT). PAT is a training program developed and operated by the Transportation Management Associates based in Fort Worth, Texas. This program was initiated by William Henderson, a man who uses a wheelchair who was concerned with the quality of service available to handicapped individuals.

Individuals from state public transportation divisions and various transportation operations throughout the nation travel to Fort Worth to participate in the training. The Transportation Manangement Associates train these people who are then certified as PAT trainers. The trainers return to their state and then conduct training sessions.

Although driver sensitivity training is critical when providing specialized transportation, it is helpful in other situations as well. In any case where individuals are more aware of their environment, they are better able

to cope with the unusual and unexpected events which occur in even the most well-organized systems.

Management of Information

In order to maintain an operation which is appropriate to the needs of the community, continuous monitoring and evaluation is required. Efficient record-keeping and evaluation are critical to this process. A small informal volunteer program may keep few or no records but with any organizational effort information management can become a major task.

Computerized management of information is becoming increasingly popular, particularly in programs which are demand-responsive. Computer-based management information systems (MIS) in rural applications provide various operational, managerial, and statistical reports. Additionally, an MIS could handle the billing and payment system to support various fare collection alternatives, such as that of a demand-responsive system which wishes to implement monthly billing. (Refer to Illustration 6, p. 35, entitled Communication Pattern for Demand Responsive Systems.)

An example of computer application in a rather large region follows. The Cape Cod Regional Transit Authority

(CCRTA) uses a computer-based MIS. The MIS is sufficient to handle up to 7500 clients and 40,000 trips/month.

This MIS itself can be broken down into four major functions or components:

1. File maintenance and inquiry routines,
2. Scheduling and trip-related data entry,
3. Monthly and annual routines, and
4. Client billing.

The following was adapted from work of Robert Stammer funded by UMTA. Computer applications on less grand scales can also prove to be effective and efficient in handling information. Because bookeeping and operational analysis is usually done manually in most rural settings, interest in microcomputers is growing.

The Upper Cumberland Area Regional Transportation System (UCARTS) in Algood, Tennessee typically provides between 17-18,000 client trips monthly with thirty-eight vehicles serving a 14-county rural area. The 1500-2000 clients typically served during any month require services to many different destinations throughout Middle Tennessee.

UCARTS was selected to investigate the role of microcomputers in rural transit operations. The researchers observed that the lack of computer skills and experience plus a general apprehension of computers by rural agency personnel generally seemed to be the norm.

By starting the orientation process gradually and using a variety of games and very basic programs, the natural inherent fears of a person unfamiliar and very apprehensive about microcomputers can be overcome, and were overcome in this instance. Advancement to more complex activities proceeded smoothly once the initial anxieties and natural inertia of resistance to change were dispelled.

Implementation of a Computerized MIS

UCARTS existing mainframe computer contract was not cancelled immediately upon adoption of the inhouse microcomputer. Many rural transportation operations' compile data manually and these existing methods should not be totally abandoned until the microcomputer programs are refined and fully operational. Even then it is necessary to have backup data and an emergency contingency plan.

The entire process of converting the present data processing procedures of UCARTS to a microcomputer has been successful. The only remaining question pertains to input time requirements. How much time is required to enter all of the trip data for the operation? The underestimation of 2-3 hours each day proved in actuality to be 4-5 hours per day.

The reported benefits of the addition of the microcomputer to UCARTS include:

- increased availability of different management reports,
- practically instantaneous generation of management reports,
- better understanding of total operational procedures and data needs because of internal processing, and
- improved data collection and monitoring procedures.

Other possible benefits are:

- financial savings,
- potential networking from additional terminals,
- data management of other agency programs besides transportation by the UCARTS umbrella agency, and
- increased marketing and funding potentials.

This latter expected benefit represents the fact that the operation will have better and more accurate records of the clients transported and the trips provided in each county, thereby identifying those counties with unmet needs. A generic version of the tailored UCARTS program is available. This program is distributed by the U.S.D.O.T. Transportation Systems Center on a national basis and is public domain software.

Marketing the System

A successful marketing program can be a key to building and maintaining a high level of ridership. Because marketing both gives and receives information, it is a critical communication process. Market research determines who needs which services where and when. Useful information can be provided by market research to determine how and when the system will be promoted, in other words, how the people for which the service is intended can find out about the system.

Promotion can be in the form of public information, customer relations, and advertising. The use of items such as logos and distinctive color schemes has proven effective in promoting systems. Illustration 12 is an example of a promotional brochure for a ridesharing program.

The rural transportation operators must provide clear information to the riders, particularly in the case where changes are made in the system. A good example of a marketing campaign is the one designed by the West Virginia Public Transportation Division. The Get on the Bus and Ride campaign was created to promote the various transportation services in West Virginia, a rural state. The West Virginia PTD developed and distributes a marketing handbook that contains the official collection of materials from the Division. It was created as an aid to operators

throughout the state in producing marketing campaigns for their operations.

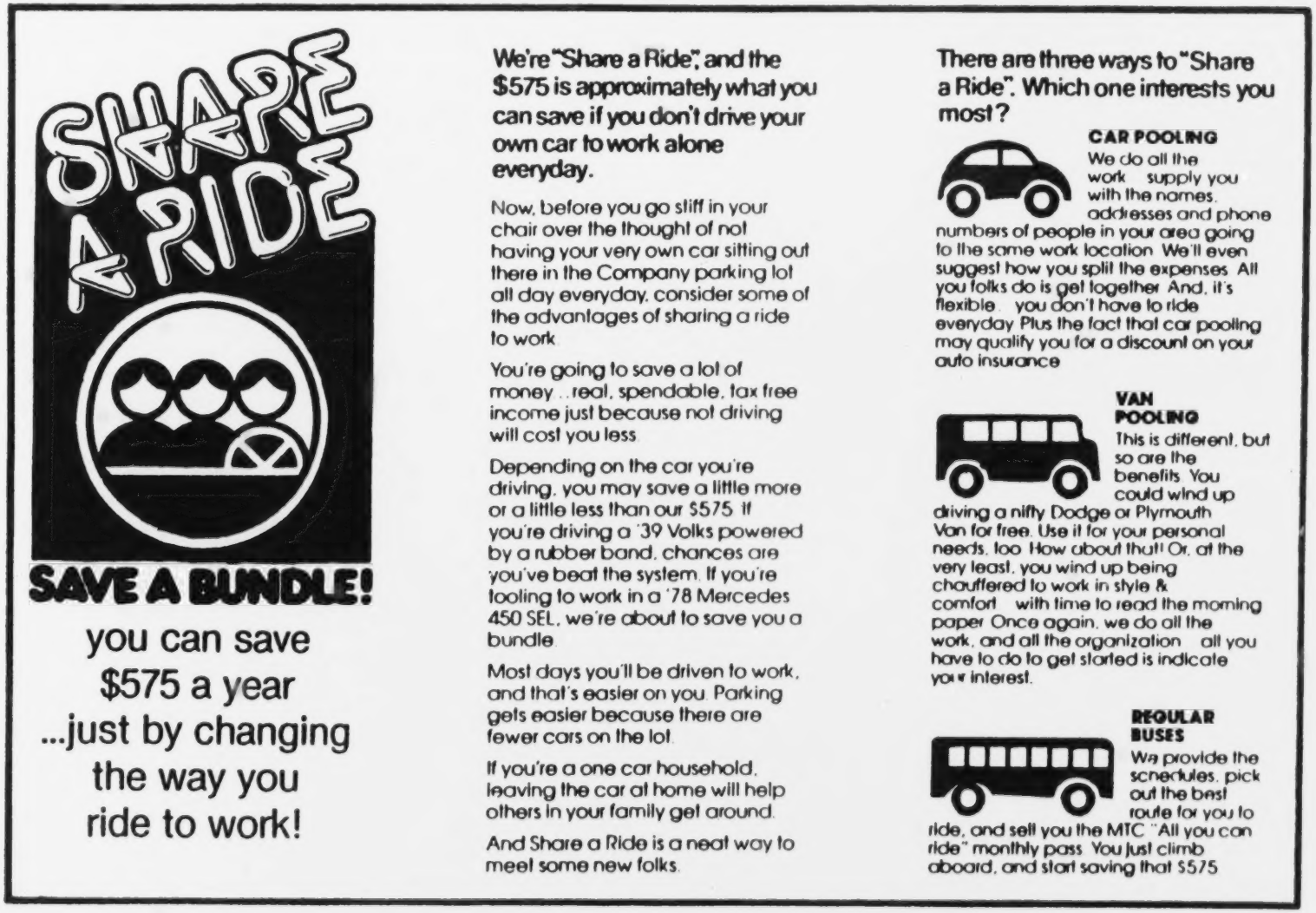
Included in the handbook are ready-to-use newspaper and radio advertisements with suggestions on how to use certain elements to prepare original ads. The budget planning section suggests how to best spend the operation's advertising budget to purchase media time and space.

Another section deals with ideas for public relations activities which generally require more expenditure of effort than cash. This section is based on the idea that good public relations can be invaluable in promoting good will and a positive image in the community.

The handbook also gives suggestions for deciding how an operator could plan a year long promotional campaign. The idea is to start with the total annual advertising budget and subtract any pre-allocated expenditures, such as Yellow Pages listings. The total budget for media expenses is then divided into percentages for specific promotions during the year.

Any successful marketing program must have a method of collecting and analyzing the feedback from the user groups in the area. This feedback should be reflected in changes made to the operation to accomodate the needs of the people using the system. Rider surveys are an inexpensive and easily implemented means of obtaining feedback as are the

Illustration 12. Sample Ridesharing Promotional Brochure.


SHARE A RIDE
SAVE A BUNDLE!
you can save
$575 a year
...just by changing
the way you
ride to work!
We're "Share a Ride", and the $575 is approximately what you can save if you don't drive your own car to work alone everyday.
Now, before you go stiff in your chair over the thought of not having your very own car sitting out there in the Company parking lot all day everyday, consider some of the advantages of sharing a ride to work.
You're going to save a lot of money ...real, spendable, tax free income just because not driving will cost you less.
Depending on the car you're driving, you may save a little more or a little less than our $575. If you're driving a '39 Volks powered by a rubber band, chances are you've beat the system. If you're tooling to work in a '78 Mercedes 450 SEL, we're about to save you a bundle.
Most days you'll be driven to work, and that's easier on you. Parking gets easier because there are fewer cars on the lot.
If you're a one car household, leaving the car at home will help others in your family get around.
And Share a Ride is a neat way to meet some new folks.
There are three ways to "Share a Ride". Which one interests you most?
CAR POOLING
We do all the work supply you with the names, addresses and phone numbers of people in your area going to the same work location. We'll even suggest how you split the expenses. All you folks do is get together. And, it's flexible you don't have to ride everyday. Plus the fact that car pooling may qualify you for a discount on your auto insurance.
VAN POOLING
This is different, but so are the benefits. You could wind up driving a nifty Dodge or Plymouth Van for free. Use it for your personal needs, too. How about that! Or, at the very least, you wind up being chauffered to work in style & comfort with time to read the morning paper. Once again, we do all the work, and all the organization all you have to do to get started is indicate your interest.
REGULAR BUSES
We provide the schedules, pick out the best route for you to ride, and sell you the MTC "All you can ride" monthly pass. You just climb aboard, and start saving that $575.

Source: Evaluation of the Minneapolis Ridesharing Commuter Services Demonstration, 1980, p. A-3

careful records kept from phone calls of people requesting information, registering complaints, and making suggestions.

Summary

The most effective way of being sensitive to the factors described above is to involve the residents of the community for which the transportation service is being designed. In this way, factors critical to the success of the service will be dealt with in the planning process, thereby eliminating the chance of additional problems. Driver sensitivity training, management of information, and marketing the system are all efforts to ensure the success of the program after implementation.

ISSUES IN RURAL PUBLIC TRANSPORTATION

The purpose of this section is:

- To describe the directions for rural public transportation in the future.

According to Jim Bautz of UMTA, a number of observers have noted a basic change in what people expect government, especially at the Federal level, to be able to do or afford to do. Because of this change, the manner in which public services, including transportation, are delivered will not be the same in the future as in the past. There will probably be less money available for public services, and the emphasis in the coming years will be on more efficient utilization of existing resources, self help, public/private partnerships and a more market oriented delivery of public service.

The need for public transportation will continue to grow in the years ahead due to the growth of rural areas and the fact that the rural population contains large numbers of elderly and persons with lower than average incomes. However, just as rural populations are

experiencing unprecedented growth, the amount of funding available for meeting rural transportation needs has been reduced.

Directions for the Future

This situation implies several directions for the design of rural public transportation operations. One important form of new service will come from improvements in existing resources. The result will be a diverse set of organizational and service arrangements, many of them rather informal in nature. It is not likely that the need for service will diminish in the foreseeable future; thus virtually every rural area will be faced with the challenge of how to efficiently meet the basic needs of its residents. Some of the directions for improving rural public transportation include:

- increasing coordination among existing providers where possible;
- increasing the use of existing resources for multiple use such as postal buses and school buses for public transportation purposes;
- increasing the use of volunteers for driving and dispatching vehicles; and
- creating more information sharing networks among existing transportation providers to increase efficiency and effectiveness.

The most appropriate mix of these and other options will depend on many factors. Some of the factors include the nature of existing services, the availability of continuing funding, the nature of transportation needs and travel patterns, and the attitudes of the local people.

Nationally significant progress has been made in rural transportation in the past five years. This has occurred primarily where local officials, transportation providers, business persons, and citizens have addressed the problem collectively. They have learned how to become involved in the transportation planning process, where to obtain technical information and assistance, and how to exchange their experiences. It has been proven that successful rural transportation programs are initiated at the local level and local officials are the most effective in demonstrating:

- need for improving or establishing local transportation systems;
- the importance of coordinating existing programs to provide a system tailored to the needs of a specific community serving everyone; and
- the cost effective use of planning, operating, and financial resources.

Funding

The diminished federal role in funding rural public transportation has given the state and local governments increased responsibility for financial assistance. In most places this will require the development of new funding sources. Some of these sources are tax levies and reallocation of other funds. However, many states and localities are experiencing severe fiscal problems of their own. Thus, the levels of new transportation funding which can be generated, and allocated to rural transportation programs, will be limited in these cases. This will create significant problems for many of the people living in rural areas. Although a high percentage of the families moving to rural areas will own at least one auto, the total number of individuals without access to an auto is not likely to decline from the current total of over 20 million.

Summary

The future success of rural transportation services depends on the cooperative efforts of federal, state, and local officials and the use of imaginative, creative, and productive approaches such as those demonstrated by people in various areas throughout the country.

The challenge to the planners of transportation service in the 1980's is to work with limited public resources to provide for the equitable distribution of transportation services throughout urban and rural areas. The situation implies that new coalitions of support be built at the local level and new institutional arrangements constructed to manage transportation operations. There will be no one solution to transportation problems. The planner will be confronted by a need to analyze a number of different services affected by a variety of institutional structures. The development of services will not be based on public policy statements but on the actual needs of the community.

STUDENT REVIEW

1. Describe the financial considerations of implementing transportation service in rural areas.

2. Describe other considerations for designing transportation service.

3. Discuss the role UMTA has played in rural public transportation.

4. Discuss the role of vehicle drivers in rural transportation systems.

5. Describe how computers can be used for management of information in transportation operations.

6. Discuss examples from your area that illustrate how a transportation system is marketed to the community.

7. Discuss how an effective marketing or promotional campaign has influenced your transportation choices.

8. Speculate on how the transportation needs of people in rural areas will be met in the future.

Please refer to the Activities section of this unit for more comprehensive work in rural public transportation.

GUIDELINES FOR STUDENT REVIEW

1. See p. 75.
2. Open ended discussion.
3. Open ended discussion.
4. See pp. 81 & 84.
5. See pp. 86-89.
6. Open ended discussion.
7. Open ended discussion.
8. Open ended discussion.

ACTIVITIES

The following activities have been designed to aid individuals desiring a better understanding of Rural Public Transportation. They can be experienced by any or all of the readers of this instructional unit. When participating in an activity which takes place in the community, care should be taken to maintain respect for the people with whom one comes in contact. A simple explanation and introduction of oneself and ones purpose for being in the area can help to create an atmosphere of trust.

Discuss the various funding programs and how they have shaped rural public transportation today.

Contact a rural transit operator in your area. Meet with the director to discuss the history of their specific operation and determine how it receives funding.

Discuss the various factors which may be involved when a private human service agency opens its transportation service to the general public.

Discuss the issue of the equitable distribution of transportation service in relation to equal access to economic opportunity.

By observing the rural areas near you, determine the conditions which contribute to the difficulty in meeting the travel needs of people who live in those locations.

In small groups of two or three, or singly, arrange to be dropped off in a nearby rural area with the objective to travel back to a predetermined spot. The amount of money each person is allowed to spend should be established ahead of time. After regrouping, discuss the experience and the transportation means available to each person.

In small groups of two or three, drive around in a rural area. Observe the conditions in that area. If possible, talk to some of the people from the area to determine their travel needs and their access to transportation service in the area.

Together in a large group, brainstorm ways in which people living in rural areas can surmount the difficulties in meeting their transportation needs.

Discuss why the general characteristics of people in rural areas inhibits the use of more conventional means of transportation.

Discuss how funding trends have affected the development of transportation services in rural areas.

Describe how local people have contributed to rural public transportation. Determine the reasons these efforts have been/ have not been successful.

Survey a rural area near you to determine the available types of transportation providers.

Locate a transportation service in your area that uses volunteer drivers or dispatchers. Volunteer your services. Meet afterward to discuss the experience.

Design and implement a ridesharing program among the people with which you associate. An informal survey could help in determining how the travel needs compare with available services or drivers.

Arrange to use as many of each of the transit and paratransit modes available; if possible include demand-responsive, fixed route service, jitney service, and ridesharing. Afterward, discuss the various experiences with others.

Using a blindfold, crutches, or a wheelchair, take turns roleplaying the driver of a service and the disabled persons using the service.

Contact local government officials to meet and discuss their policy on providing transportation to the people of the area.

Observe the various marketing and promotional schemes of the transportation services in your region. Critique the effectiveness of each campaign.

Contact a small transit operation near you. Meet with the marketing personnel to discuss their approach to marketing the system. If possible, volunteer to design a promotional brochure or radio announcment for the service.

Contact a demand-responsive or other transportation service which manages information by use of computers. Arrange to visit the site for observation.

Write a scenario describing rural public transportation in the future. Read the scenario to the group and discuss the implications.

Meet with a group of young people to talk about rural public transportation. Ask them questions such as, What if you lived in a rural area and did not have a car? The answers to this and other questions can prove inspirational to persons interested in designing transit services.

Design and participate in other activities to achieve a better understanding of Rural Public Transportation.

A Citizen's Guide

The following guide was designed to help local people design and implement needed local transportation services. It was adapted from the work of Peter Schauer, a consultant who has helped design many UMTA funded rural systems. It

is intended here as an illustration of one approach to designing transportation systems from the grassroots level.

In the event that readers of this unit choose to actually design transit service in a local rural area, this guide could serve as a beginning.

The steps outlined below indicate how interested persons could legitimately take greater control of meeting the mobility needs of their community. It coincides with the previous discussion in this unit of the market segmentation/needs-based approach to design.

- The first step is to conduct a survey to determine the mobility needs of the people in the specified rural area. This survey could be an informal phone survey to the social-service agencies in the area to determine if they perceive a service need.
- The second step is to contact local government officials (e.g. county commissioner, mayor, state legislator, congresspeople, etc.) and explain the situation. Ask them how they can help you and get a feel for how they will respond to suggestions.
- The third step is to contact the state government. Call the public transportation division to ask for help and to identify other transportation projects they have funded. If trouble is experienced at getting help at this level, contact can be made to

a land-grant college extension office. At least all of the following should be contacted:

- Local and state elected officials such as the county commissioner, mayor, and congresspeople.
- The public transportation division of the state department of transportation
- Local social-service agencies, such as area agencies on aging and community action agencies.
- The local voluntary action center.
- Churches and religious leaders in the community.
- The local community development specialist or the small business extension agent at the local land-grant college.
- Private transportation operators, like buses and taxis (listed in the yellow pages.)
- The local planning commission.

Once an interested person contacts the members of the community, it can more easily be decided which approach to designing a transportation system should be taken.

- The fourth step, which could be done earlier, is to form a task force to involve more people. Professional people can become involved as they are usually accustomed to cutting through the red tape that can delay transportaion planning efforts.

Other individuals who have proven to be useful are retired teachers and ministers. Additionally, members of the groups for whom the service is intended can be forceful in speaking out for the need for the service.

- The final step in planning rural transportation systems is to devlop the plan. Look at the plans of the agencies and organizations contacted previously. If they are supposed to be providing transportation and sre not doing, the task force can encourage them to do so. Most communities in the U.S. are covered by some county, regional, or state transit plan. These can be obtained through the state department of transportation. One suggestion when planning rural transit systems is to start small; organize car and vanpools or create other volunteer networks to help meet the mobility needs of the people in the community.

APPENDIX A

Rural Transit Network

American Association of State Highway and Transportation Officials (AASHTO)

American Public Transportation Association (APTA)
1225 Connecticut Ave., N.W.
Suite 200
Washington, D.C. 20036
(202)828-2870

Ed Beimborn
Center for Urban Transportation Studies
University of Wisconsin at Milwaukee
Milwaukee, WI 52201

Judy Byman
ARROWHEAD Transit of Minnesota
(218) 749-2912
(for information about their program)

Peter Canga
Texas Association for Coordinated Trabsportation (TACT)
(512) 835-6868

Michael Couture and David Damm
Transportation Systems Center
(617) 494-2247 or 2465
(for newsletter E-1microScoopE-0)

Ira Doom, Coordinator
Public Transportation
Dept. of Transportation
City of Huntsville
100 Church St., S.W.
Huntsville, AL 35801-0308
(205) 532-7440
(for info. about Huntsville van program)

FHWA Rural Technical Assistance Program (RTAP) Centers

- St, Michael's College (Winooski, VT)
- Pennsylvania State University (University Park)
- Georgia Institute of Technology (Auburn, AL)
- Purdue University (Lafayette, IN)
- Iowa State University (Ames)
- Oklahoma State University (Stillwater)
- Montana State University (Boseman)
- University of California at Berkley

Cindy Fish
West Virginia Public Transportation Division
(304) 348-0428
(for information about West Virginia's rural operations)

Bob Goble
Carter-Goble Associates, Inc.
Columbia, S.C. 29211
(803) 765-2833
(He is active in Rural Public Transportation.)

Betty Green
RIDES of Southern Illlinois
(618) 287-3621
(for information about their program and its use of volunteers)

David Griffiths
LISTS Brokerage Operation
50 North Duke Street
Lancaster, PA
17603
(717) 291-1234

Lynn Leidersdorff
Watauga County Transportation Authority (WCTA)
Boone, NC
(The transportation director for WTCA and an organic farmer doing research in alcohol fuels.)

Douglas J. McKelvey
Community Planner
FHWA US DOT
Rural and Small Urban Transportation Management Branch
400 7th Street, S.W.
HHP-11
Washington, D.C. 20590
(202) 426-0153

Michael Meyer
MA Department of Public Works
(617) 973-7310

James H. Miller, Director
Public Transportation Program
PA Transportation Institute
Pennsylvania State University
Research Building B
University Park, PA 16802
(814) 863-1909

Louise Morris, Executive Director
Women's Transportation Seminar
P.O. Box 7753
Ben Franklin Station
Washington, D.C. 20044
(703) 256-5258

National Association for Specialized Transportation
(NASTA).
Randy Issacs, President
(615) 331-5173
Board of Directors:
Betty Newell (804) 581-3271
Linda Wilson (804) 296-3184
Glenn Lemasters (804) 358-3376
Don Thorne (703) 343-1721

National Ridesharing Infromation Center
Contact Bob Redmond, FHWA
(202) 426-0210

Avram Patt, Co-director
CVTA Brokerage Operation
15 Ayers Street
Barre, VT 05641
(802) 479-1071

Norm Paulhus
Technology Sharing Program (I-30SR)
Office of the Assistant Secretary for Governmental Affairs
400 7th Street, S.W.
Washington, D.C. 20590
(for publications)

Pat Piras
(415) 464-7744
(She is the coordinator for the planning committee for the Rural Transit Financing Panel Workshop, 7th national Conference, Rural PublicTransportation.)

Public Trasportation Network
Anita Winkler
%Crain and Associates
343 2nd Street, Suite A
Los Altos, CA 94022
(415) 949-1472

Rensselaer Polytechnic Institute
Troy, NY 12182
(518) 270-6227
(for E-1TIMEE-0, Transit Industry Microcomputer Exchange)

Resource Center on Transit Pricing
Ecosometrics
4715 Cordell Ave.
Bethesda, MD 20814
Contact Sue Knapp or Patrick Mayworm
(301) 652-2414

Rural America
1302 18th Street, N.W.
Suite 302
Washington, D.C. 20036
(202) 659-2800

Barbara Price, Editor of the Rural Transportation Reporter
George Rucker
Gail Weston
Dave Raphael

Peter Schauer, Principal
Peter Schauer Associates
Hwy 179 Rt. 2
Booneville, MO 65233
(816) 882-7388

Bob Schmitt
Division of Urban Outreach
Office of Statewide Transportation Programs
P.O. Box 413
Milwaukee, WI 53201
(414) 963-4891
(for information about needs assessment questionnaire)

Charlene Schofield
Rural Technical Assistance Program (RTAP)
Special Programs Branch, HHP-11
FHWA
400 Seventh Street, S.W.
Washington, D.C. 20590
(202) 426-0153

Robert L. Smith, Jr.
University of Wisconsin
Dept. C & EE
2044 Energy Building
Madison, WI 53706
(608) 262-3649

Robert E. Stammer, Jr.
Box 90 Station B
Vanderbuilt University
Nashville, TN 37235
(615) 322-3435
(for information about microcomputers in Rural Public Transportation)

Ruth Stone, Administrative Assistant
OATS, Inc.
(314) 443-4516
(for information about Missouri's program)

Technology Information Clearinghouse for Local Elderly and Handicapped Transportation Options
Transportation Systems Center
Kendall Square
Cambridge, MA 02142
Contact Bud Giangrande
(617) 494-2486

Mitzi Teel
West Virginia Public Transportation Division
Building 5 Capitol Complex
Charleston, WV 25305
(304) 348-0428

Wendy Thomas
WV Dept. of Human Services
Area Office #3
P.O. Box 800
High Street
Morgantown, WV 26505
(for information about the TRIP program)

Transportation Systems Center
Research and Special Programs Administration
Kendall Square
Cambridge, MA 02142
Contact: Bud Giangrande or Jim Dumke (DTS-31)
(800) 225-1612 or
(617)494-2486

TR News
Nancy A. Ackerman,Editor
Transportation Research Board
2101 Constitution Avenue, N.W.
Washington, D.C. 20418
(202) 334-2972

UPTRAN
Bus Transit Division of Northern Michigan
State Transportation Division
425 West Ottawa Street
P.O. Box 30050
Lansing, MI 48909
(for films about their program)

Urban Mass Transportation Administration (UMTA)
Lynn Sahaj
(202) 426-7182
(for grants and regulations information)

Judy Mead
(202) 426-4984

Larry Bruno
(202) 426-4984

Roger Tate
(202) 426-4984

Transit research Information Center (TRIC)
UMTA
Contact Marina Drancsak or Winnie Muse (URT-7)
(202) 426-9157

UMTA Centers for Transit Research and Management Development

- University of California at Irvine
- New York Institute of Technology
- Portland (Oregon) State University
- Wharton School, University of Pennsylvania (Philadelphia)
- Florida A6M University (Tallahassee)
- Texas Southern University (Houston)
- University of Michigan at Ann Arbor
- Indiana University (Bloomington)

Urban Mass Transportation Research Information Service (UMTRIS)
Transportation Research Board
National Research Council
2101 Constitution Ave., N.W.
Washington, D.C. 20418
contact Fred Houser
(202) 334-3256

Urban Transportation Planning System Support Center (UTPS)
COMIS Corp.
11501 Georgia Ave.
Wheaton, MD 20902
(for batch computer planning tools)

GLOSSARY OF TERMS

Broker

The function of the broker is to identify the transportation needs of various market segments and then match these with the most appropriate transportation resources available.

Brokerage

A management technique which brings people in need of transportation together with a provider.

Carpool

Rides shared in private automobiles by two or more people, on a continuing basis, regardless of their relationship to each other or of cost sharing arrangements.

Community Action Program

This program, which began under the Office of Economic Opportunity in the late 1960's and was later absorbed by the Community Services Administration, has been responsible for funding many rural transportation services.

Coordination (of transportation)

A cooperative arrangement among transportation providers and purchasers aimed at realizing increased transportation benefits through the joint development and operation of one or more transportation functions.

Demand-Responsive Paratransit

A public transportation service characterized by the flexible routing and scheduling of relatively small vehicles to provide shared-occupancy, door-to-door personalized transportation on demand for a modest fare.

Fixed-Route Service

Scheduled fixed-route service in nonurbanized areas is characterized by higher density and higher demand corridors, fixed schedules, and fixed routes.

Headway

The time required for successive vehicles travelling at the same speed and direction to pass the same point.

Intercity Buses

Although intercitybus service is not a practical alternative in terms of providing a total transportation service for a nonurbanized area, such service can be utilized to form an integral element of a total transportation system. Intercity buses can provide service from a central transfer point in a nonurbanized area to an urban area within the region.

Jitney

A vehicle travels along a fixed route with predetermined schedule but may make pick-ups or drop-offs anywhere along the route. This type of fixed route service is characterized by generally smaller vehicles and short headways.

Market Segmentation

The key to the market-segmentation approach is the identification of groups in the target market that are homogeneous with respect to important criteria that influence their travel choices.

Mobility Club

This is a cooperative form of the volunteer driver framework, in which the club consists of rider-members who have frequent need for transportation and driver members who are willing to provide transportation to others in their own car in return for payment.

Paratransit

Those types of public transportation on the continuum betwee the private automobile and conventional transit. These flexible services are operated publicly or privately and are typically small scale operations using low-capacity vehicles.

Point Deviation

A point deviation system is one in which vehicles stop at specific locations on a regular schedule, but do not have to follow a set route between those stops. Passengers may request to be picked up at any location (e.g., at their homes) within a certain distance of the general "routes." The actual route is determined, on a run-by-run basis, by the locations of the individual requests, as well as the scheduled stops.

Postal Bus

This concept involves the transportation of passengers in privately operated vehicles also engaged in the distribution and collection of mail along designated routes.

Ridesharing

The utilization of transportation resources of small urban and ruralareas can be enhanced through the introduction of the ridesharing concept. Ridesharing involves the sharing of a transportation vehicle by patrons of two or more different agencies or groups. Applications of the ridesharing concept can improve vehicle utilization and therefore the costeffectiveness of the transportation service.

Route Deviation

A route deviation system is one which vehicles proceed along a fixed route, making scheduled stops along the way; however, the vehicles are allowed to deviate from the route on demand to pick-up or drop-off passengers. The vehicle returns to the original route at the same point at which it left.

Section 8

The Planning and Technical Assistance Program that provides for planning grants in rural and urban areas.

Section 13(c)

This is a provision of the UMT Act of 1964 which requires that the position of existing transit workers "not be diminished" through projects initiated with UMTA funds.

Section 16(b)(2)

The program that provides capital assistance to private, non-profit organizaitons for services for the elderly and for persons with disabilities who live in rural and urbanized areas.

Section 18

Section 18, created through the Surface Transportation Act of 1978, authorized the Non-Urbanized Area Transit Assistance Program, which povides funding to cover up to 50% of the transit operating (and up to 80% of capital) deficits incurred in eligible areas. Funds have been allocated to states on a formula basis, based on non-urbanized area population.

Section 147

Section 147 of the Federal Aid Highway Act of 1973 authorized funding for the Rural Transit Demonstration Program. This program led to the initiation of over 100 demonstrations throughout the country and was the forerunner of Section 18.

Subscription Bus (Buspool, Custom Bus)

Words used interchangeably to refer to express bus service with limited pickup and destination stops, guaranteed seats, and advance ticket purchase.

Subscription Service

Individuals or groups within the service area may subscribe to a transportation service on a daily basis. These patrons generally travel either to or from a single location.

Taxis

Many urbanized areas throughout the country have been utilizing taxis to provide transportation service to the elderly and persons with disabilities. In nonurbanizedareas, however, taxis are not as prevalent and, therfore, have not been extensively used in providing a public transportation service. Taxis are a particularly good user-side subsidy transit option.

Transportation Cooperative

A transportation cooperative is an organization which operates a transportation service, the users of which are members of the organization and are involved (either directly or through representation) in the management of the service.

Transportation Providers Cooperative

A transportation providers cooperative is an organization which operates a service, the users of which are transportation providers and are directly involved in sharing information, pooling resources, purchasing parts as a group, and establishing joint training sessions.

Vanpool

Prearranged membership in a group whose members are picked up at specific points to be taken to common or nearby sites, usually employment sites, then returned to the pickup points after the end of the workday.

Volunteer Driver Program

This as an arrangement in which volunteers, using their own automobiles, transport clients of participating agencies. Volunteers are reimbursed for mileage and other operating expenses.

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